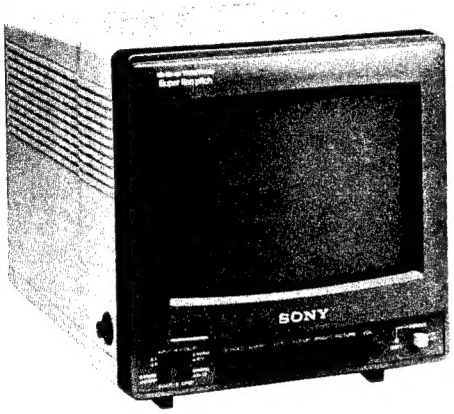
SONY

TRINITRON® COLOR VIDEO MONITOR

BVM-8021



OPERATION AND MAINTENANCE MANUAL

1st Edition

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WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.
LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.

TABLE OF CONTENTS

SAFETY CHECK-OUT
(US Model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).
   Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60–100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

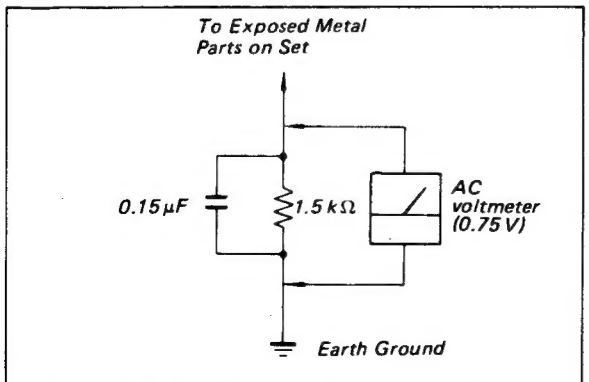


Fig. A. Using an AC voltmeter to check AC leakage.

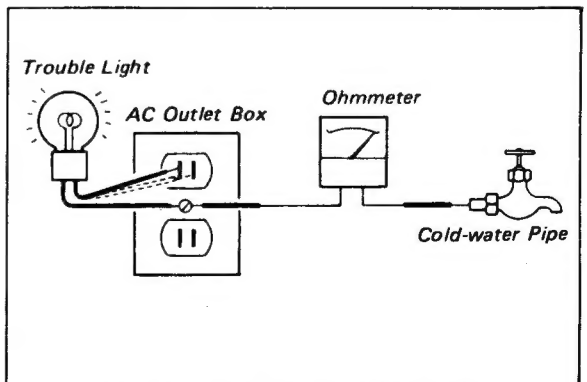


Fig. B. Checking for earth ground.

SECTION 1
OPERATION

1-1. OUTLINE

Super Fine Pitch Trinitron® picture tube
The Super Fine Pitch Trinitron picture tube gives a high resolution (400 TV lines), high contrast picture.

Colorpure filter
The colorpure filter increases the resolution and results in fine picture detail without color spill or color noise.

Push-to-lock controls
In the locked position, the controls are protected from damage during carriage of the unit. The protruding position allows easier operation.

Monitor of sync signals
The H/V DELAY switch allows horizontal and vertical sync signals to be displayed on the screen.

Blue only picture
By using the B ONLY switch, the picture can be displayed in blue and black only, facilitating hue adjustment or observation of VTR noise.

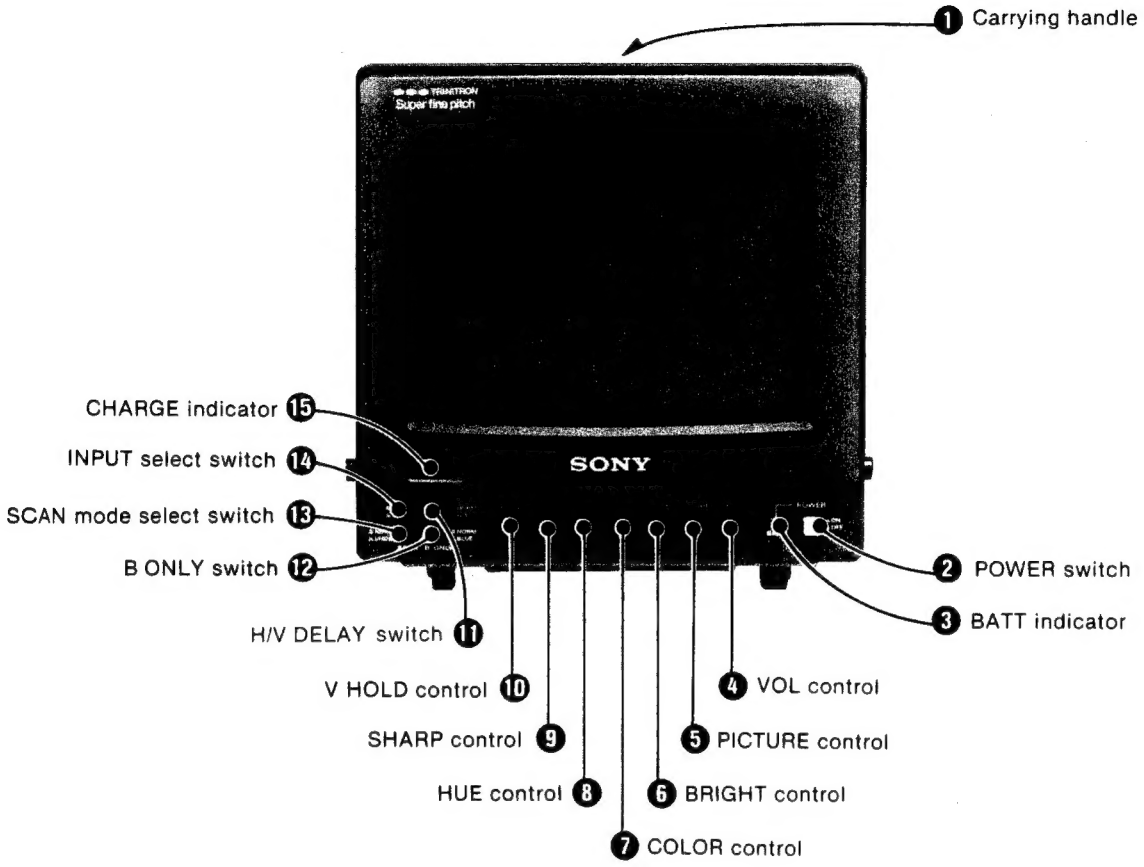
Underscan mode
The signal normally scanned outside of the screen can be monitored in the underscan mode.

6-pin DIN tuner connector
The TUNER connector allows easy connection of a TV tuner, which is equipped with the 6-pin DIN connector, using a single cable.

Three power sources
The monitor can operate on either ac power source, a rechargeable battery or a 12V car battery, allowing use indoors or outdoors. The battery charge function is incorporated.

1-2. LOCATION AND FUNCTION OF CONTROLS

1-2-1. Front Panel



❶ Carrying handle

❷ POWER switch
To turn the monitor on, depress the POWER switch (▵ON). To turn it off, press the switch again (▫OFF).

❸ BATT (power/battery) indicator
This indicator lights when the power is turned on. When the rechargeable battery becomes weak (less than 10.5V), the indicator flashes for about five minutes. Then it goes out, and the power is automatically turned off.

❹ VOL (volume) control
Turn this control clockwise or counterclockwise to obtain the desired volume.

❺ PICTURE control
Adjusts the contrast, intensity and brightness simultaneously in the proper ratio.

❻ BRIGHT (brightness) control
Adjusts the brightness. Normally set this control at the center detent position.

❼ COLOR control
Adjusts the color intensity of the picture. Clockwise rotation makes the picture more vivid; counterclockwise rotation makes it paler.

❽ HUE control
Use to obtain the most natural skin tones. Clockwise rotation makes the skin tones more greenish; counterclockwise rotation makes them more purplish.

❾ SHARP (sharpness) control
Adjusts the sharpness of the picture. Clockwise rotation makes the picture sharper; counterclockwise rotation makes it softer.

❿ V HOLD (vertical hold) control
If the picture rolls vertically, correct it with this control.

> Before turning one of the controls ❹ to ❿, for easier operation press on it to release the control to a protruding position.

⓫ H/V DELAY switch
Normally keep this switch released (▫NORM). To monitor the sync signals, depress the switch (▵H/V). The picture is shifted horizontally and vertically. The horizontal sync is displayed in left approximately one quarter of the screen and the vertical sync is displayed near the center of the screen.

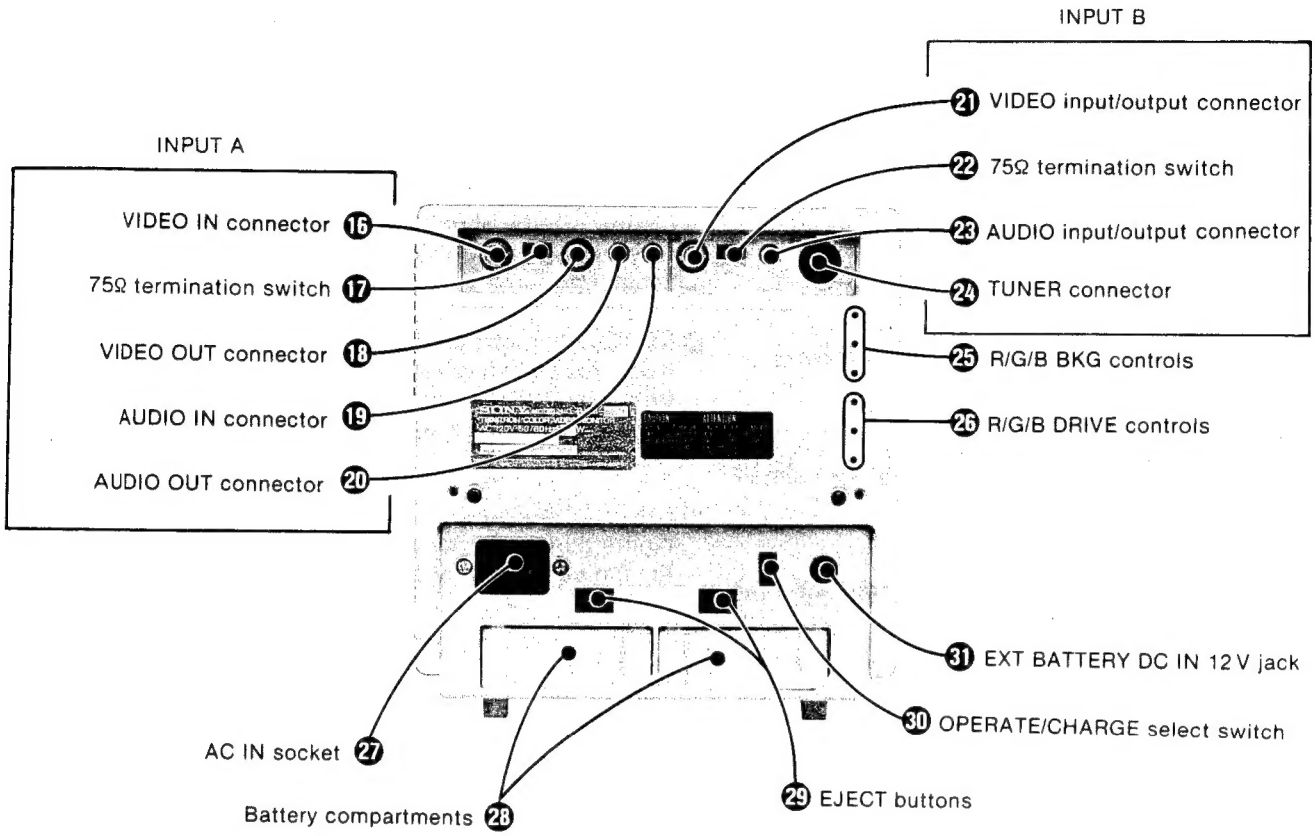
⓬ B ONLY (blue only) switch
Normally keep this switch released (▫NORM). Depress the switch (▵BLUE) to turn off the red and green beams. The picture will be displayed in blue and black only. This facilitates hue adjustment or observation of VTR noise.

⓭ SCAN mode select switch
Keep this switch released (▫NORM) for normal scanning. Depress the switch (▵UNDER) to reduce the display size by about 5% (underscanning mode) and to view a picture which does not appear in normal scanning.

⓮ INPUT select switch
Keep this switch released (▫A) to monitor the signal from the INPUT A connectors. Depress the switch (▵B) to monitor the signal from the INPUT B connectors.

⓯ CHARGE indicator
Lights during charging. When charging is complete, the indicator goes out.

1-2-2. Rear Panel



INPUT A
To monitor the input signals connected to these connectors, keep the INPUT select switch released (⊓A).

⑯ **VIDEO IN connector** (BNC type)
Connect to the video output of video equipment, such as a VTR or a color video camera.

⑰ **75Ω termination switch**
When only the VIDEO IN connector is used (the VIDEO OUT connector is not used), set this switch to ON. When both the VIDEO IN and VIDEO OUT connectors are used together for a loop-through connection, set the switch to OFF.

⑱ **VIDEO OUT connector** (BNC type)
Loop-through output of the VIDEO IN connector. Connect to the video input of a VTR or another monitor.

⑲ **AUDIO IN connector** (minijack)
Connect to the audio output of a VTR or to a microphone (through a suitable microphone amplifier).

⑳ **AUDIO OUT connector** (minijack)
Loop-through output of the AUDIO IN connector. Connect to the audio input of a VTR or another monitor.

INPUT B
To monitor the input signals to these connectors, depress the INPUT select switch (⊓B).

㉑ **VIDEO input/output connector** (BNC type)
Connect to the video output of a VTR or a color video camera.
When a TV tuner is connected to the TUNER connector and the 75Ω termination switch ㉒ is set to OFF, this connector can be used as a loop-through output of the TUNER connector. Connect to the video input of a VTR or another monitor.

㉒ **75Ω termination switch**
Normally set this switch to ON. When both the TUNER and VIDEO connectors are used together for a loop-through connection, set the switch to OFF.

㉓ **AUDIO input/output connector** (minijack)
Connect to the audio output of a VTR or to a microphone (through a suitable microphone amplifier).
When a TV tuner is connected to the TUNER connector and the 75Ω termination switch ㉒ is set to OFF, this connector can be used as a loop-through output of the TUNER connector. Connect to the audio input of a VTR or another monitor.

㉔ **TUNER connector** (6-pin DIN)
Connect to the 6-pin DIN connector of a TV tuner. The video and audio signals are supplied to the monitor and the power from the monitor is fed to the tuner using a single cable.

Note
The TUNER input and the VIDEO/AUDIO inputs ㉑, ㉓ cannot be used simultaneously. When connecting a TV tuner to the monitor, be sure to disconnect any input source equipment from the VIDEO and AUDIO connectors, or vice versa.

㉕ **R/G/B BKG (background) controls**
Used for adjusting the white balance of the background.

㉖ **R/G/B DRIVE controls**
Used for adjusting the white balance at the white peak.

㉗ **AC IN socket**

㉘ **Battery compartments**
Insert the NP-1 battery pack.

㉙ **EJECT buttons**
Press the EJECT button upwards to remove the battery pack.

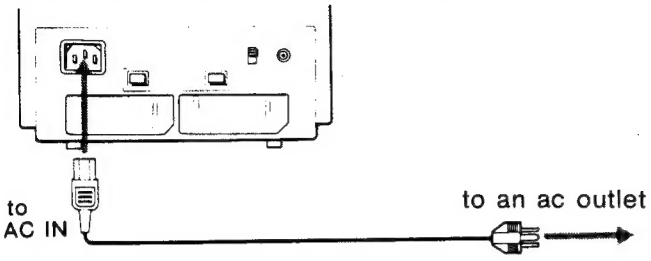
㉚ **OPERATE/CHARGE select switch**
Normally set this switch to OPERATE. To charge the battery pack, set to CHARGE. The CHARGE indicator on the front panel lights. When charging is complete, the CHARGE indicator goes out; reset the switch to OPERATE.

㉛ **EXT BATTERY (external battery) DC IN 12 V jack**
Connect the optional DCC-16AW car battery cord.

1-3. POWER SOURCES

1-3-1. AC Power

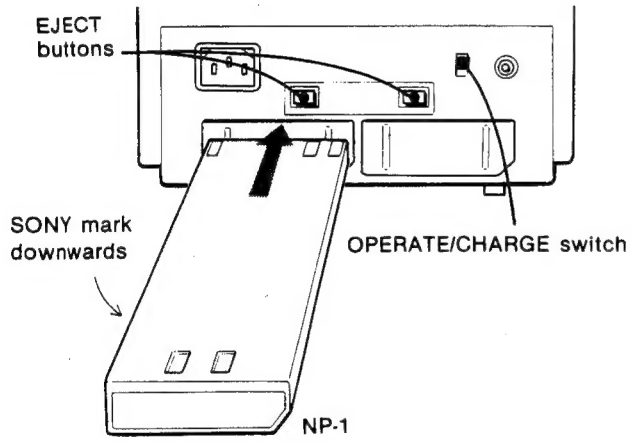
Connect the supplied ac power cord to the AC IN socket and to an ac outlet (120V ac).



When the ac power cord is plugged into the AC IN socket, the battery pack (if installed) or the car battery (if connected) is automatically disconnected.

1-3-2. Rechargeable Battery

Insert the Sony NP-1 battery pack (optional) into the battery compartment as illustrated. The monitor can operate with one or two battery packs. For extended use, two battery packs are recommended.



To remove the battery pack, press the EJECT button upwards.

Note

Make sure that the ac power cord and the car battery cord are disconnected from the monitor. Otherwise, the monitor cannot operate on the battery pack(s).

Caution

Do not use any other batteries than the NP-1, even if any can be inserted into the compartment.

Charging the battery pack

Before using the monitor, be sure to fully charge the battery pack. The charging time is about 6 hours at normal temperatures.

1 Connect the supplied ac power cord to the AC IN socket and then to an ac outlet.
2 Insert the battery pack(s) into the battery compartment(s).
3 Set the OPERATE/CHARGE switch to CHARGE.
4 Depress the POWER switch. The CHARGE indicator lights and charging begins.

When charging is complete, the CHARGE indicator goes out. Be sure to reset the OPERATE/CHARGE switch to OPERATE.

When the OPERATE/CHARGE switch is set to CHARGE, the picture cannot be monitored.

- For quicker charging, use the optional BC-1WA battery charger for NP-1.

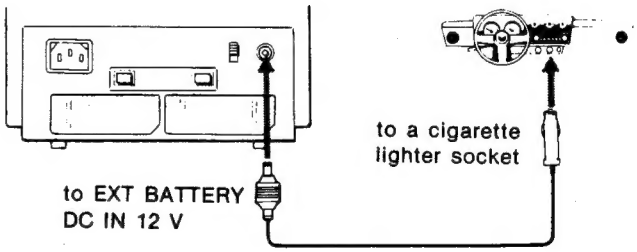
Battery life

At normal temperatures, the picture can be monitored continuously for about 60 minutes using two battery packs and operating the TV tuner connected to the monitor. When the TV tuner is not used, longer battery life can be expected (about 75 to 80 minutes).

When the battery is exhausted, the green BATT indicator flashes for about five minutes, and then the power is turned off automatically to prevent excessive battery discharge. When the BATT indicator goes off, press the POWER switch and replace the exhausted battery pack(s) with fully charged one(s), or use another power source.

1-3-3. Car Battery

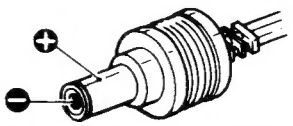
Use the Sony DCC-16AW car battery cord (optional) for a 12 V car battery. Connect the car battery cord to the EXT BATTERY DC IN 12 V jack and to the cigarette lighter socket of a car. For further details, read the instruction manual of the car battery cord.



When the car battery cord is plugged into the EXT BATTERY DC IN 12 V jack, the battery pack (if installed) is disconnected automatically.

Note

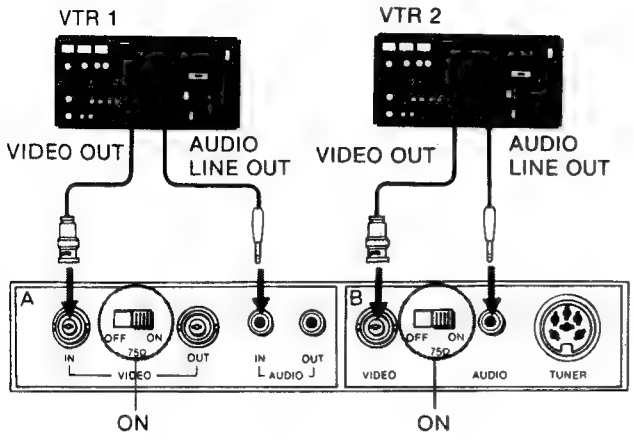
Use only the recommended car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



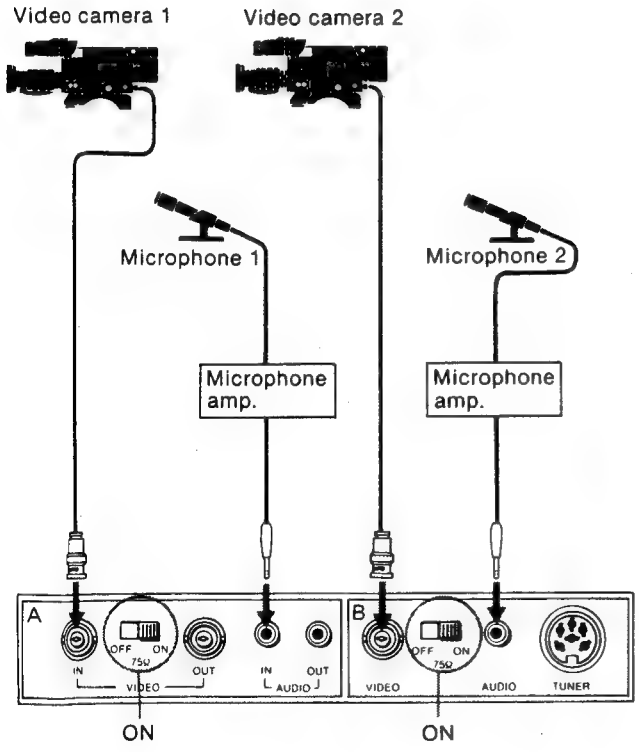
Polarity of the plug of Sony car battery cord

1-4. SYSTEM CONNECTIONS

1-4-1. Connecting a VTR

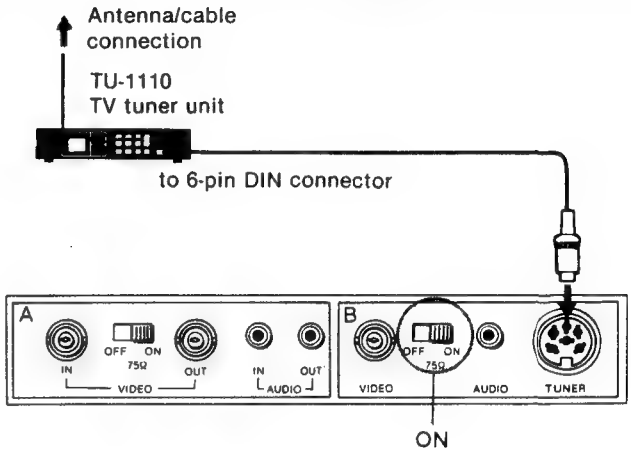


1-4-2. Connecting a Camera and a Microphone



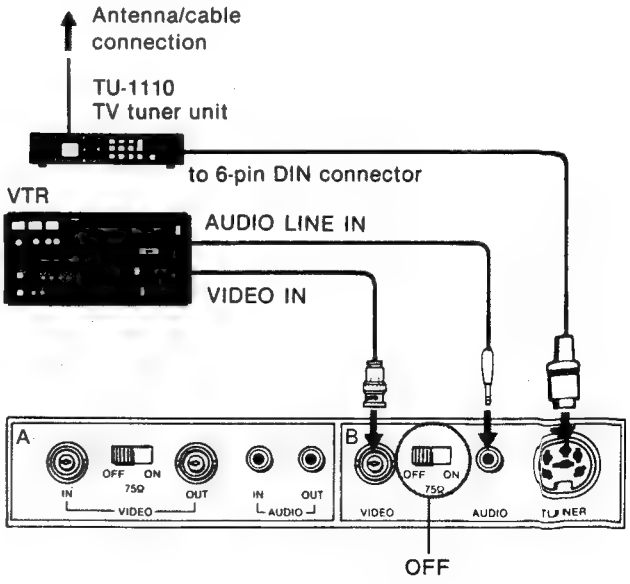
1-4-3. Connecting a TV Tuner

The Sony TU-1110 TV tuner unit, which is provided with a 6-pin DIN connector, can be connected to the monitor.



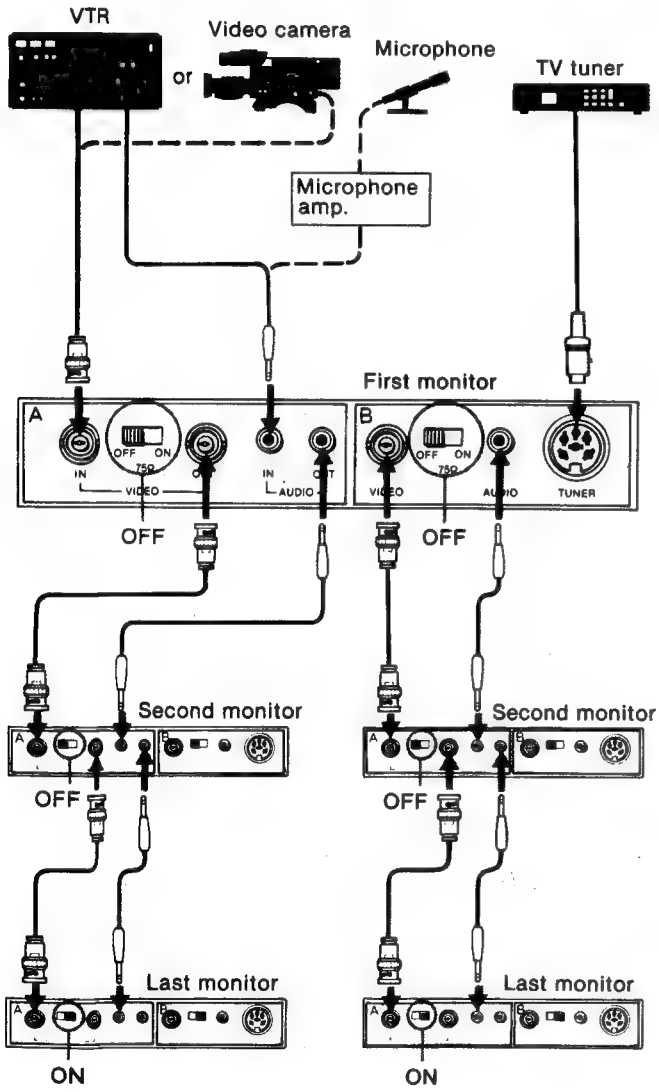
1-4-4. Connecting a TV Tuner and a VTR

The VIDEO and AUDIO connectors of INPUT B can be used as loop-through outputs of the TUNER connector. By making the following connection, TV programs received by the TV tuner can be recorded on a VTR while monitoring the picture.

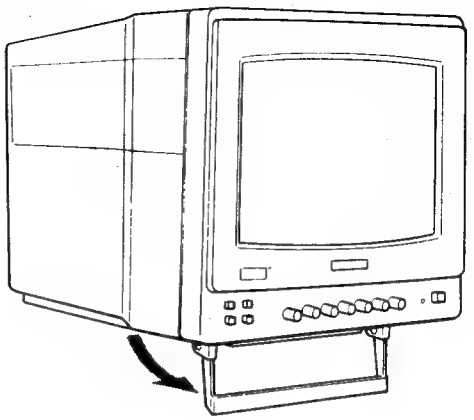


1-4-5. Connecting Several Monitors

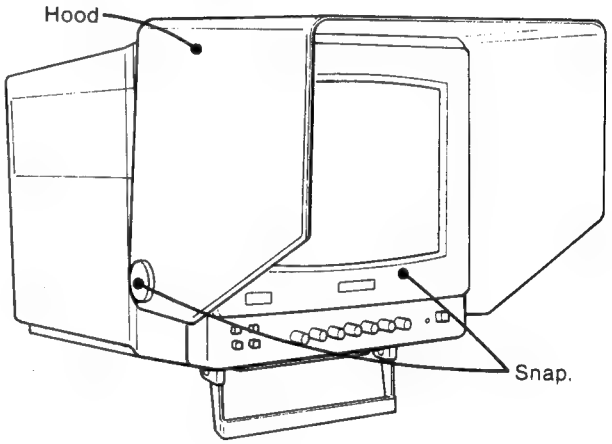
A loop-through connection is convenient for monitoring the same signal on several monitors. Use the VIDEO OUT and AUDIO OUT connectors of INPUT A, and for the TV tuner, use the VIDEO and AUDIO connectors of INPUT B. Up to 10 monitors can be connected for each group. Set the 75Ω termination switch of the last monitor to ON and those of the other monitors to OFF.



1-5. USE OF THE STAND



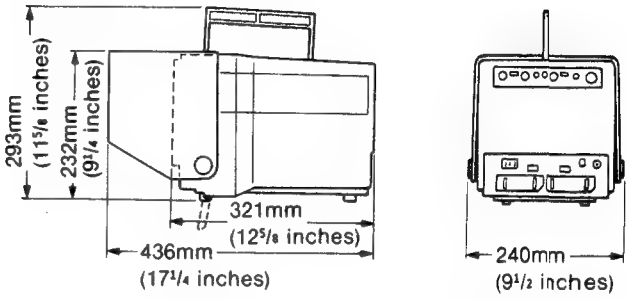
1-6. ATTACHING THE SUPPLIED HOOD



1-7. SPECIFICATIONS

Color system NTSC system
Picture tube Super Fine Pitch Trinitron tube
8-inch picture measured diagonally,
70-degree deflection
Resolution 400 TV lines (B/W)
Color temperature
6,500°K
Frequency response
5.5 MHz (−3 dB)
Horizontal linearity
± 8 %
Vertical linearity
± 8 %
Line pull range
Horizontal ± 500 Hz
Overscan of the picture
6 %
Underscan of the picture
5 %
H/V delay Horizontal: Approx. 1/4 line
Vertical: Approx. 1/2 field
Return loss 5 MHz, −30 dB (INPUT A, INPUT B)
Zooming Within 3 %
Convergence Central area 0.5 mm
Periphery 0.7 mm
Brightness More than 30 foot-lamberts
Inputs VIDEO IN (INPUT A): BNC connector
VIDEO (INPUT B): BNC connector
Composite 1V p-p ± 6 dB, 75 ohms, unbalanced, sync negative
AUDIO IN (INPUT A): minijack
AUDIO (INPUT B): minijack
−5 dBs, 47 k ohms or more
Outputs VIDEO OUT (INPUT A): BNC connector
VIDEO (INPUT B): BNC connector
1 V p-p, 75 ohms, unbalanced, sync negative
AUDIO OUT (INPUT A): minijack
AUDIO (INPUT B): minijack
Output level 0.8 W
TUNER connector
6-pin DIN connector
Pin No. 1: not in use
Pin No. 2: video input, composite 1 V p-p ± 6 dB, 75 ohms, unbalanced, sync negative
Pin No. 3: ground
Pin No. 4: audio input, −5 dBs, 47 k ohms or more
Pin No. 5: power output
Pin No. 6: not in use

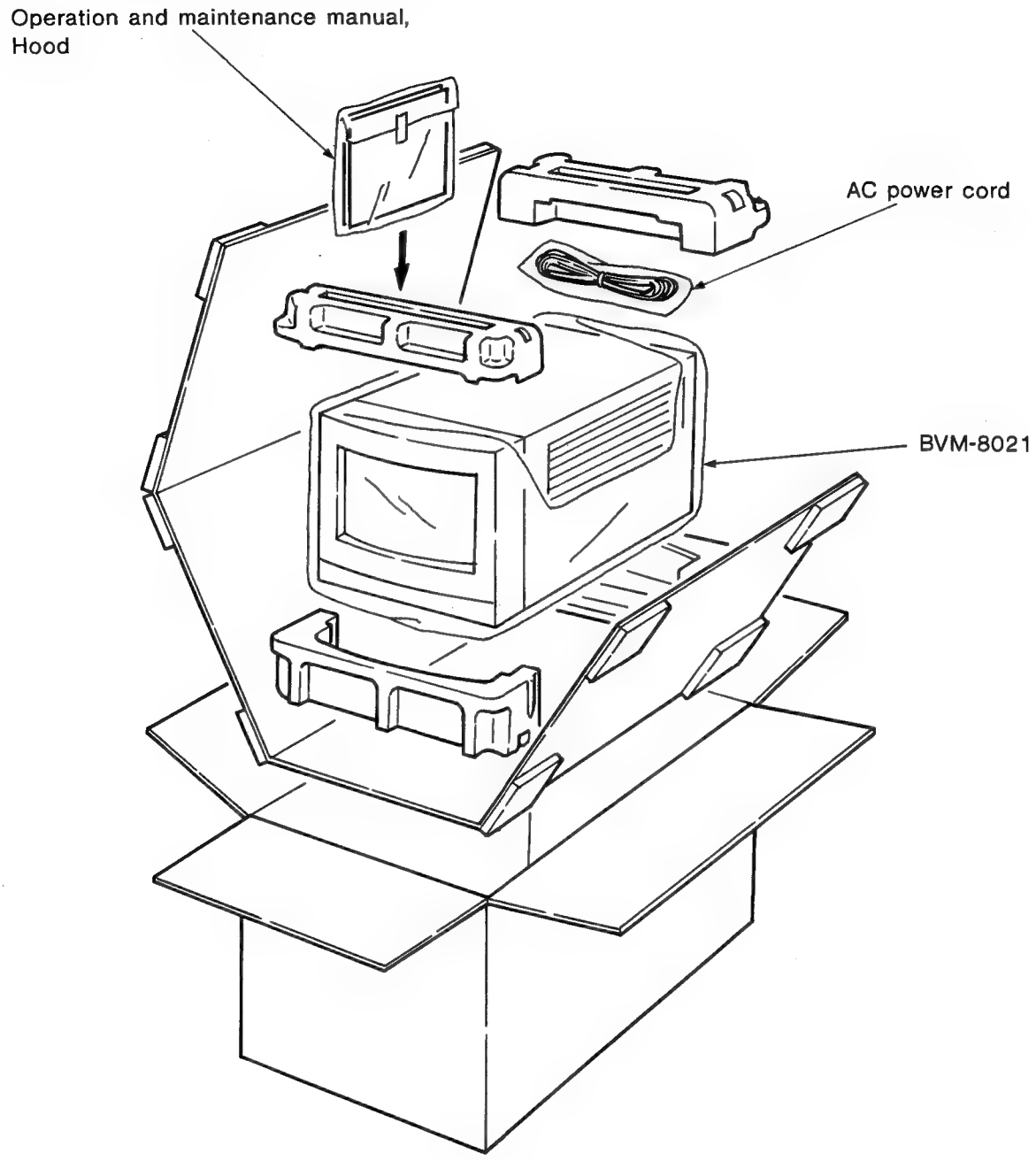
Power requirements
120 V ac, 50/60 Hz
12 V dc, with the optional Sony NP-1 battery pack or 12 V car battery using the optional DCC-16AW car battery cord
Power consumption
47 W ac, max.
38 W dc, max.
Dimensions



Weight Approx. 7.2 kg (15 lb 14 oz) not incl. accessories
Accessories supplied
AC power cord (1)
Hood (1)
Operation and maintenance manual (1)
Optional accessories
TV tuner unit TU-1110
Battery pack NP-1
Car battery cord DCC-16AW
Battery charger BC-1WA

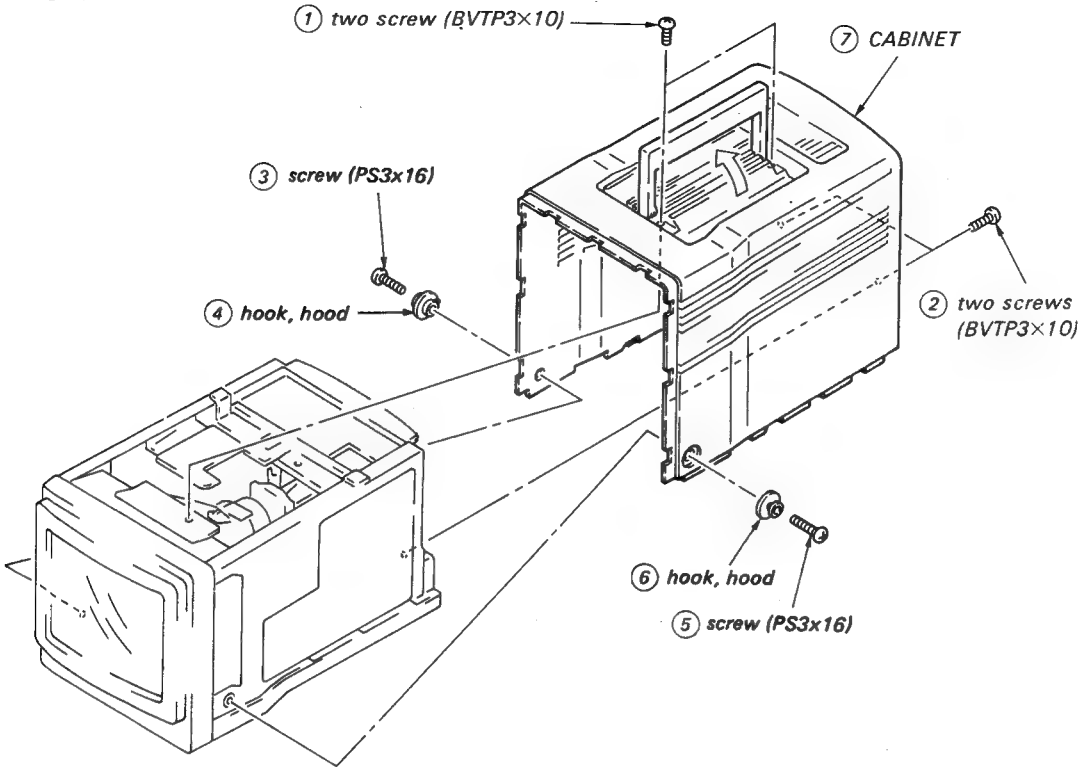
Design and specifications subject to change without notice.

1-8. PACKING

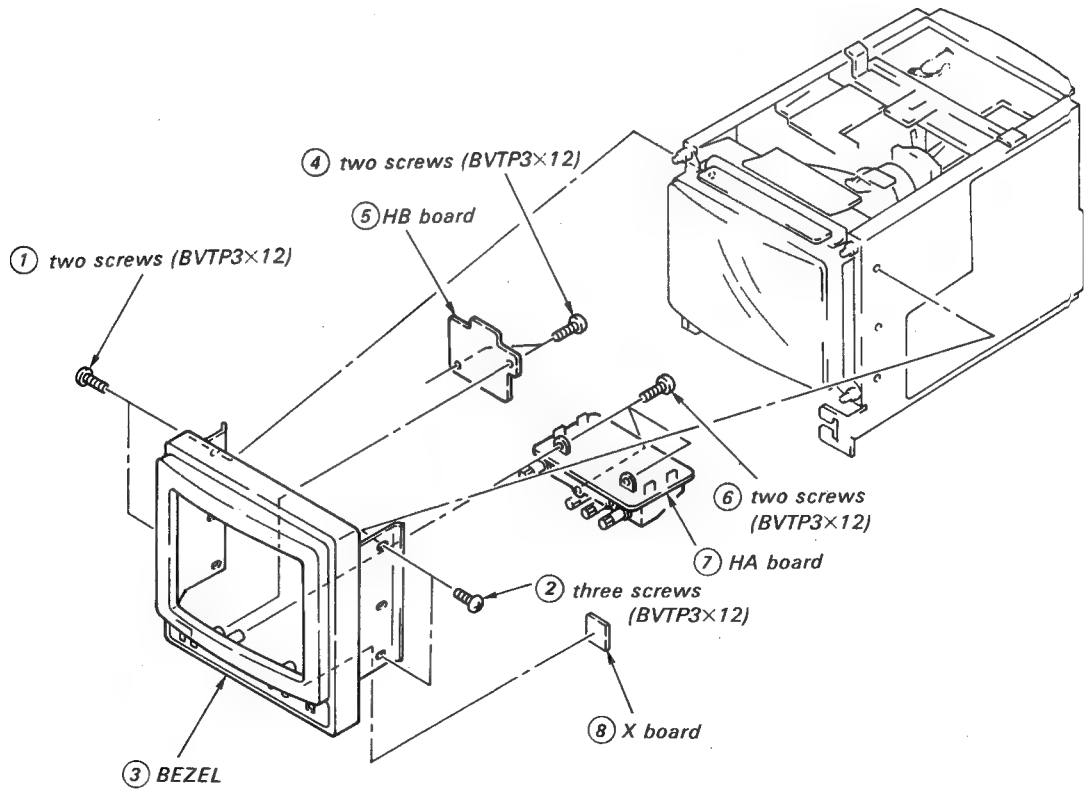

Operation and maintenance manual,
Hood
AC power cord
BVM-8021

SECTION 2
DISASSEMBLY

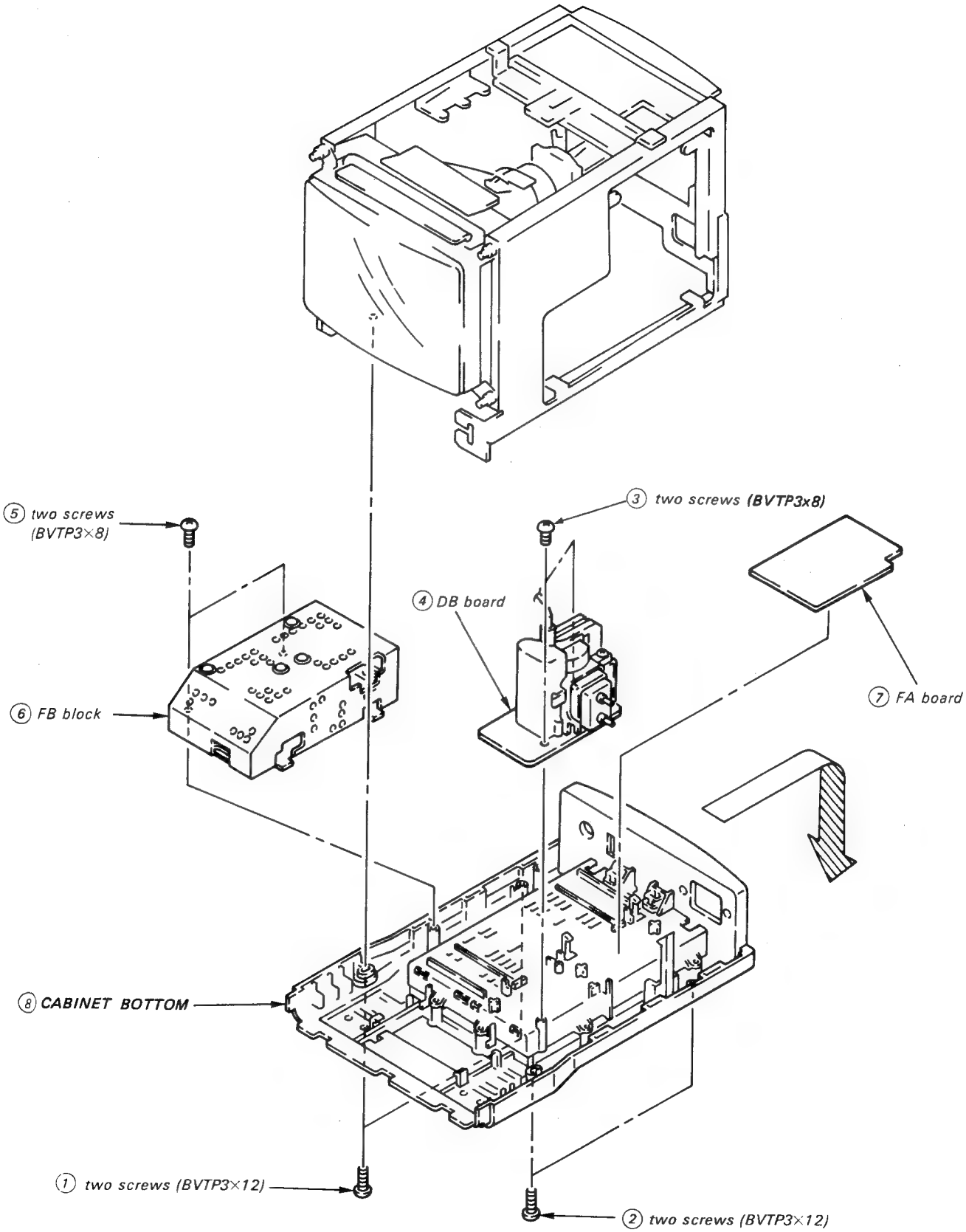
2-1. CABINET REMOVAL



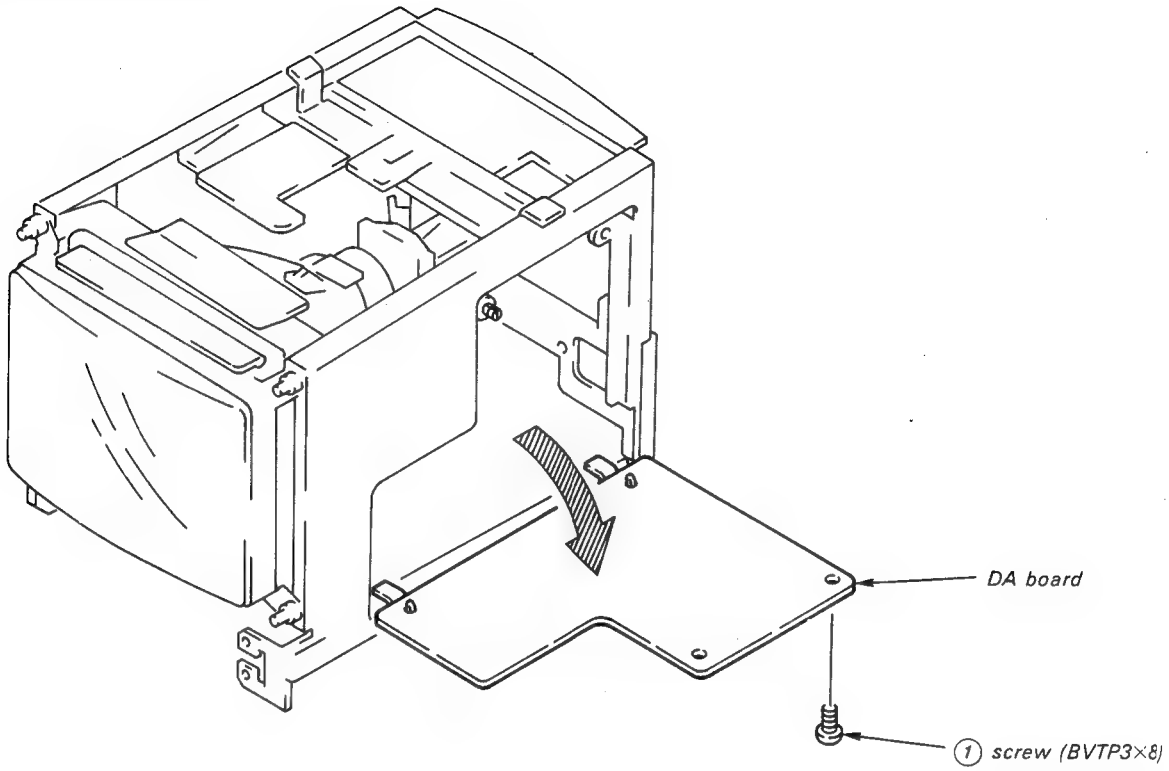
2-2. BEZEL REMOVAL (HA, HB, X BOARD)



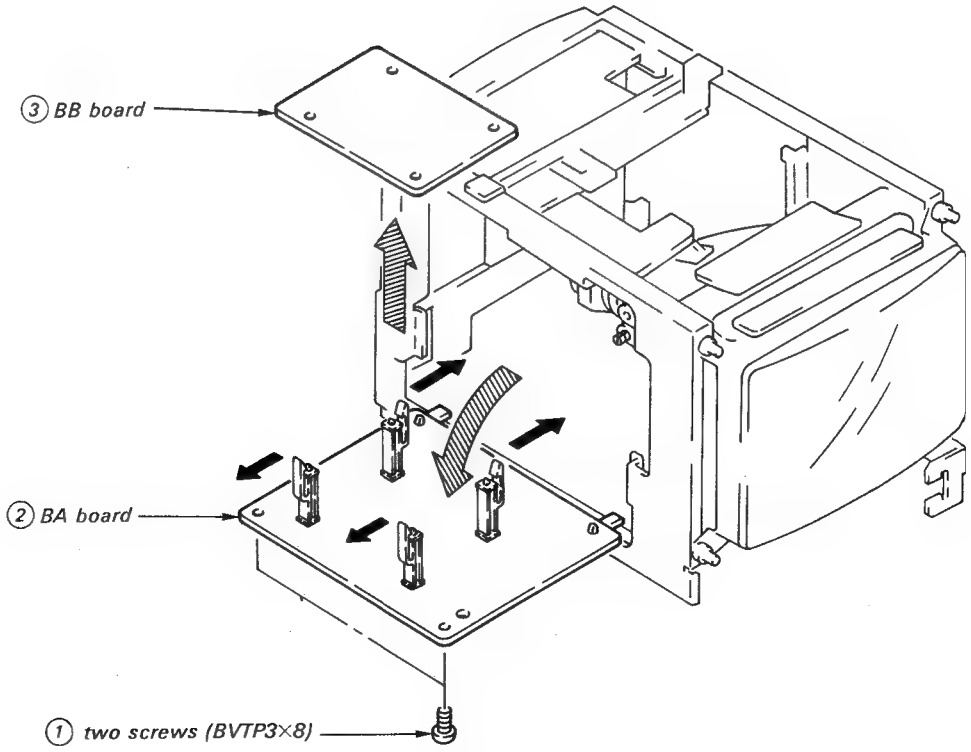
2-3. CABINET BOTTOM REMOVAL



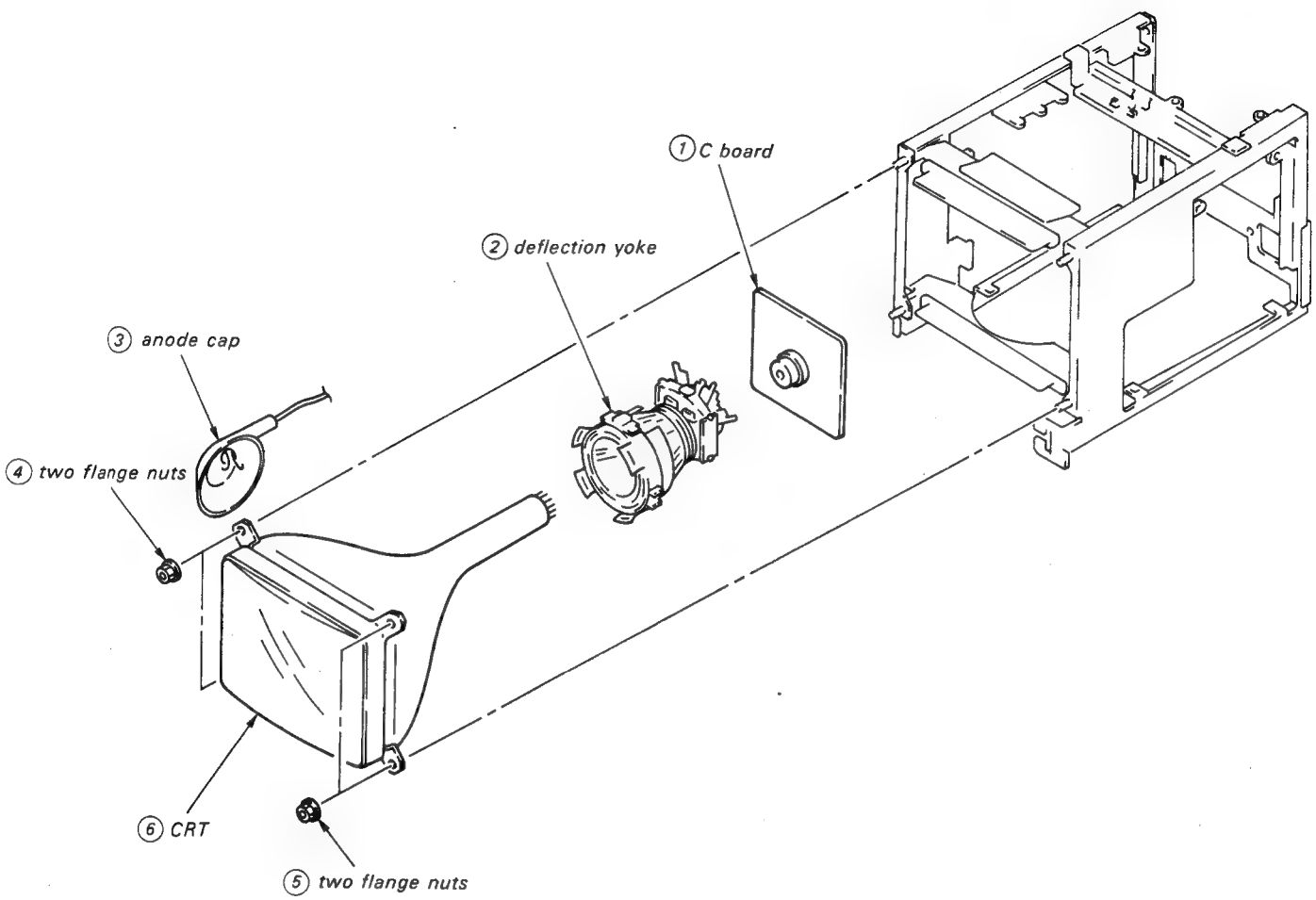
2-4. DA BOARD REMOVAL



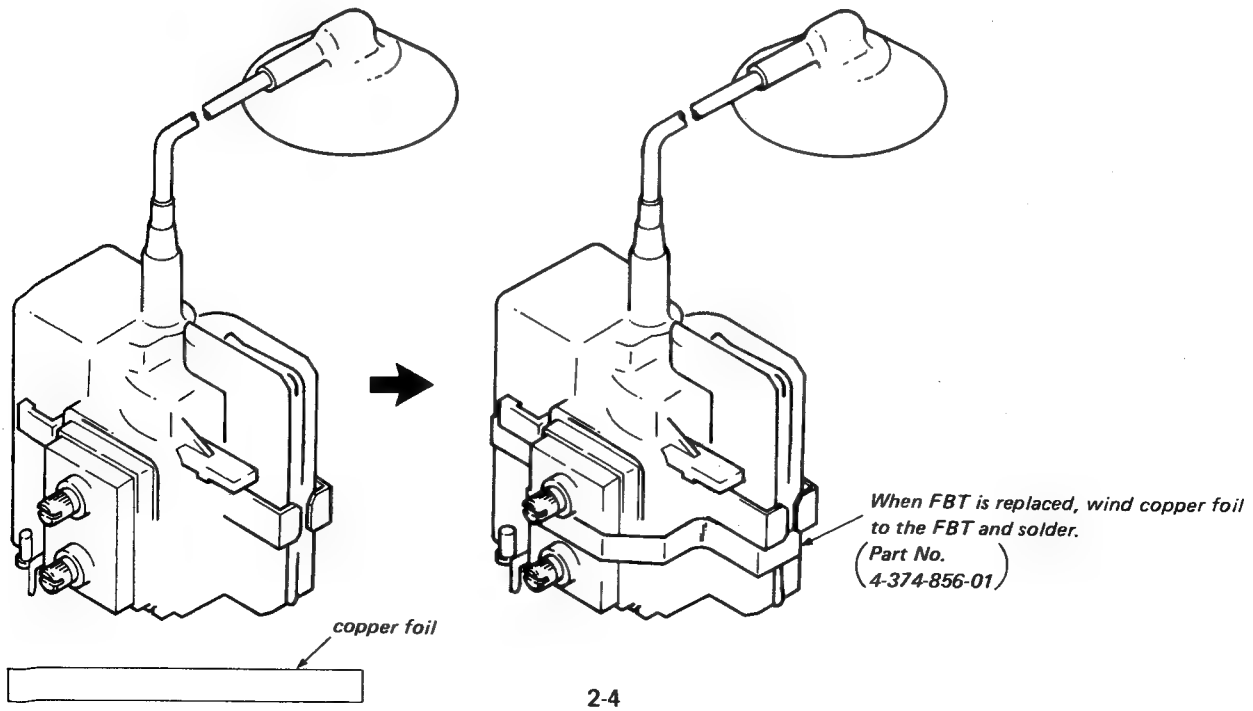
2-5. BA, BB BOARDS REMOVAL



2-6. CRT REMOVAL



2-7. REPLACING FBT



SECTION 3
SET-UP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

Controls and switch should be set as follows unless otherwise noted:

BRT. CONTR controls ..... fully clockwise

Make the following adjustments in the order as follows given:

3-1. Beam Landing
3-2. Focus Adjustment
3-3. Convergence
3-4. White Balance

Note: Test Equipment Required
1. Color-bar/pattern generator
2. Degausser

3-1. BEAM LANDING

Preparation:

- Before starting, degauss the entire screen.

1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Adjust purity control to center the slide between two projections as shown in Fig. 1-1.
4. Slide deflection yoke as far forward as it will go.
5. Turn RED CUT OFF VR (RV259) MAX and GREEN (RV261) and BLUE CUT OFF RV (RV263) MIN.
6. Turn purity control to center vertical red band as shown in Fig. 1-2.
7. Slide deflection yoke back for a uniform red screen.
8. Check green and blue rasters for uniformity. Repeat the steps 6, 7 and 8.
9. Turn all CUT OFF VR (RV259, 261, 263) for mechanical CENTER.
10. Install the deflection yoke spacers.
11. Tighten the deflection yoke screw.
12. Check if mislanding appears at corners a-d as shown in Fig. 1-3. If mislanding is observed, correct it as shown in Fig. 1-4.

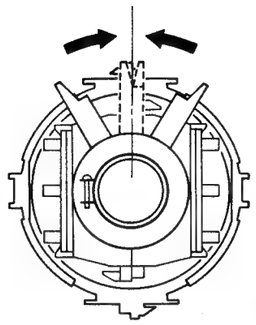


Fig. 3-1

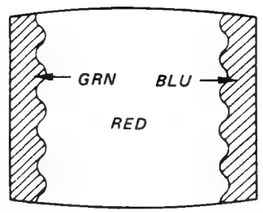
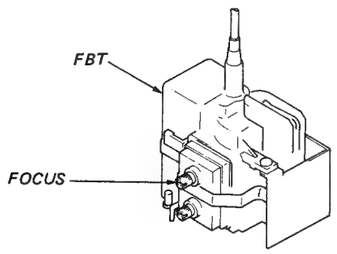


Fig. 3-2

3-2. FOCUS ADJUSTMENT

(1) Input monoscope signal.
PICTURE control 80%
BRIGHT control 50%
(2) Adjust FOCUS control for a best picture at the center and both sides of the screen.



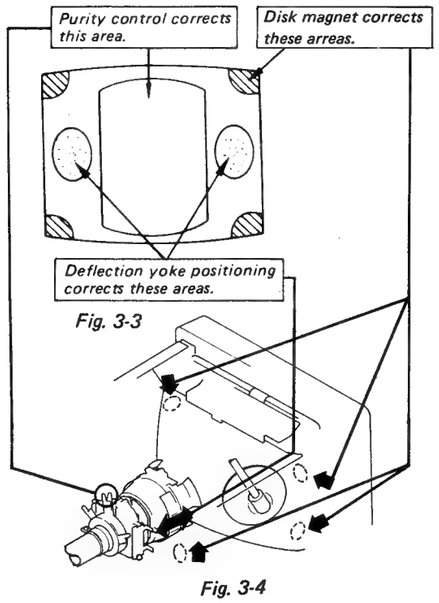


Fig. 3-3

Fig. 3-4

3-3. CONVERGENCE

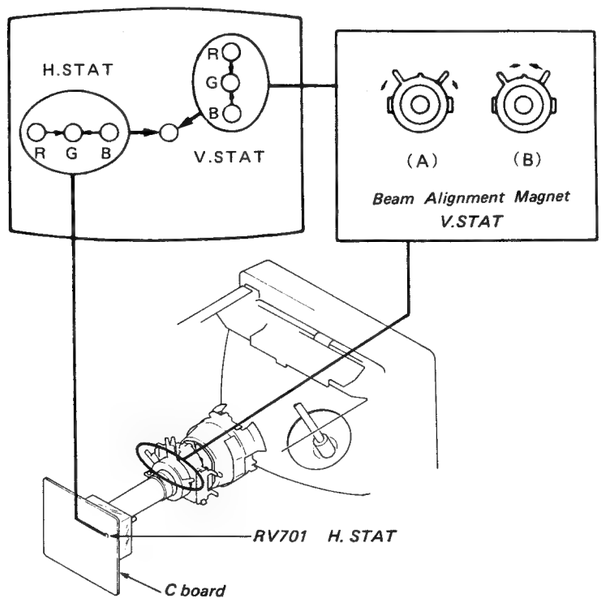
Preparation:

- Before starting, make FOCUS, H.SIZE, V.SIZE and V.LIN adjustments.
- Turn BRT control fully counterclockwise.
- Feed in the dot pattern.

(1) Horizontal Static Convergence and Vertical Static Convergence

If blue dot does not coincide with red and green dots,
Move BMC magnet to correct insufficient H.Static convergence.
Rotate BMC magnet to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

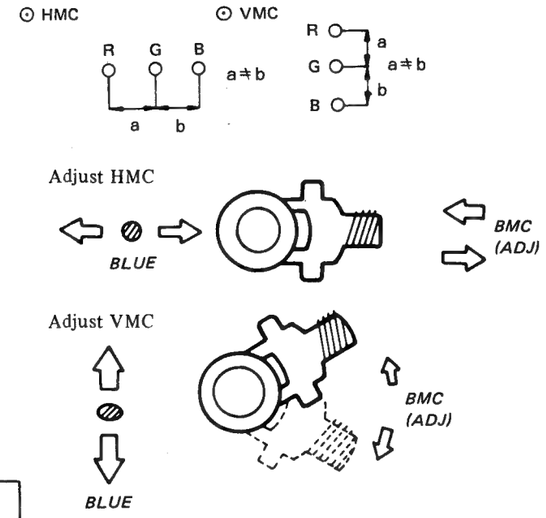


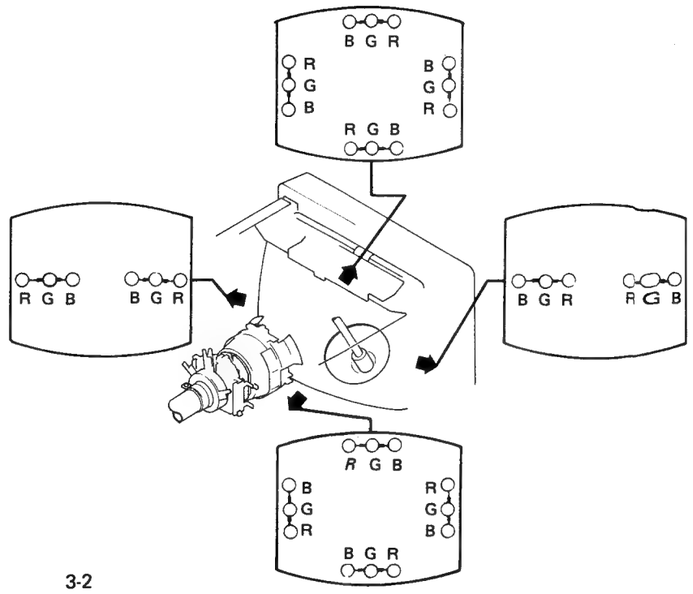
(2) Dynamic Convergence Adjustment

Preparation:

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.

1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.





3-3. CONVERGENCE

Preparation:

- Before starting, make FOCUS, H.SIZE, V.SIZE and V.LIN adjustments.
- Turn BRT control fully counterclockwise.
- Feed in the dot pattern.

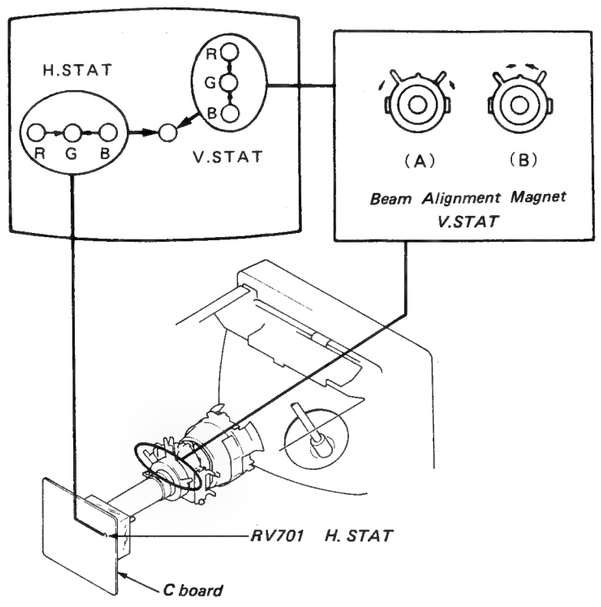
(1) Horizontal Static Convergence and Vertical Static Convergence

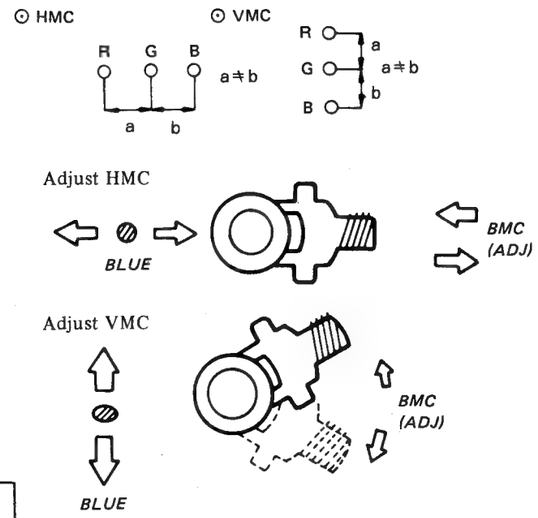
If blue dot does not coincide with red and green dots,

Move BMC magnet to correct insufficient H.Static convergence.

Rotate BMC magnet to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.



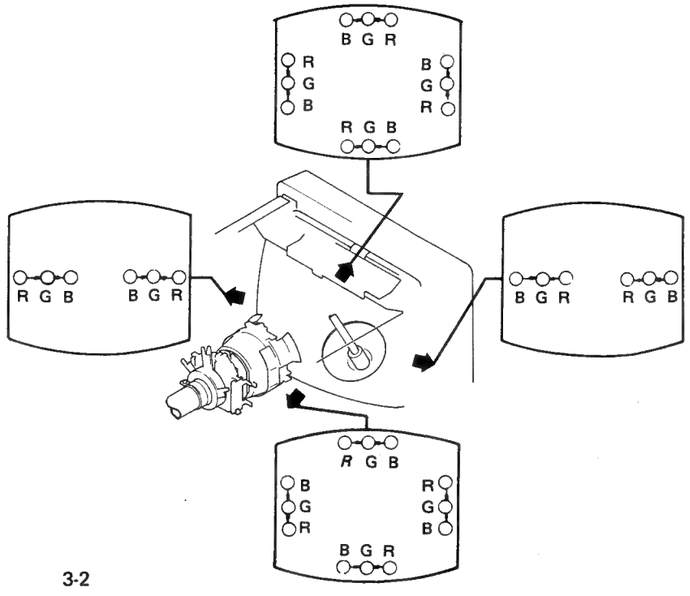


(2) Dynamic Convergence Adjustment

Preparation:

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.

1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.



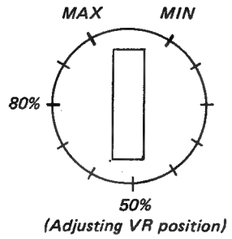
3-4. WHITE BALANCE

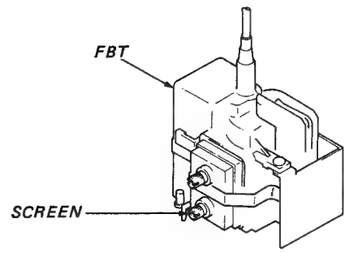
(1) SCREEN (G2)

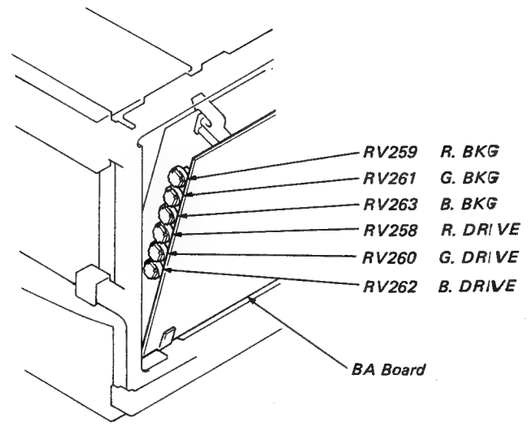
1. In put a dots pattern.
2. Set the PICTURE control at minimum and turn the BRIGHT control fully counterclock wise.
3. Confirm that BKG voltage is less than 105V dc when turning RV259 (R.BKG), RV261 (G.BKG) and RV263 (B.BKG).
4. Note the color which becomes visible first when turning SCREEN VR.

(2) WHITE BALANCE

1. Input a cross-hatch pattern.
2. Set the PICTURE control to minimum and turn the BRIGHT control click position.
3. Turn RV262 (B.DRIVE), RV260 (G.DRIVE) and RV258 (R.DRIVE) fully clockwise.
4. Set RV259 (R.BKG), RV261 (G.BKG) and RV263 (B.BKG) to minimum.
5. Turn RV509 (SUB BRT) slowly to obtain a faintly visible cross-hatch. Note the color that first becomes visible by turning. Do not turn a BKG control for this color.
6. Adjust the other two BKG controls for best white balance (neutral gray) of the faint cross-hatch. Set the PICTURE control to maximum and turn the BRIGHT control fully clockwise. Observe the screen and adjust the DRIVE controls for best white balance.
7. Repeat steps 1. through 6. several times.





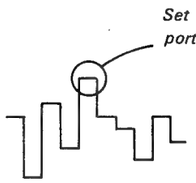


SECTION 4
CIRCUIT ADJUSTMENTS

4-1. BA BOARD ADJUSTMENTS

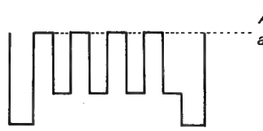
HUE BIAS ADJUSTMENT

1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
2. *Connect an oscilloscope to pin (3) of the BA-6*
3. *Turn RV254 fully counterclockwise, then slowly return RV254 untill the waveform at pin (3) of BA-6 connector begin to change.*



SUB COLOR ADJUSTMENT

1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
   COLOR 50%
2. *Adjust RV264 for the waveform at connector BA-6 (3) to become as illustrated.*



APC ADJUSTMENT

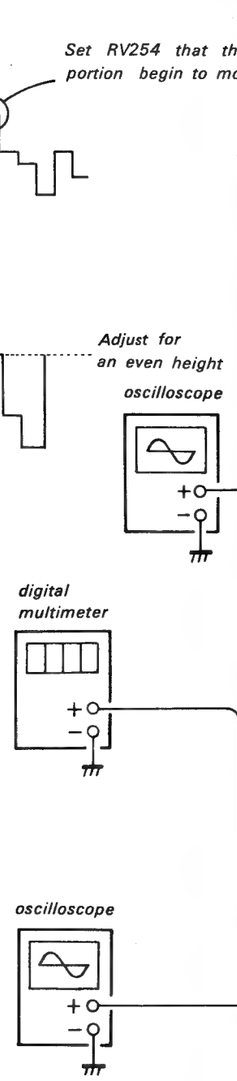
1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
   COLOR 50%
2. *Connect a 100 kΩ resistor between IC253 pin (13) and ground. (Killor circuit goes off)*
3. *Ground IC253 pin (16) with a 10μ/16V chemical capacitor and remove color sync.*
4. *Adjust RV256 to get color sync.*

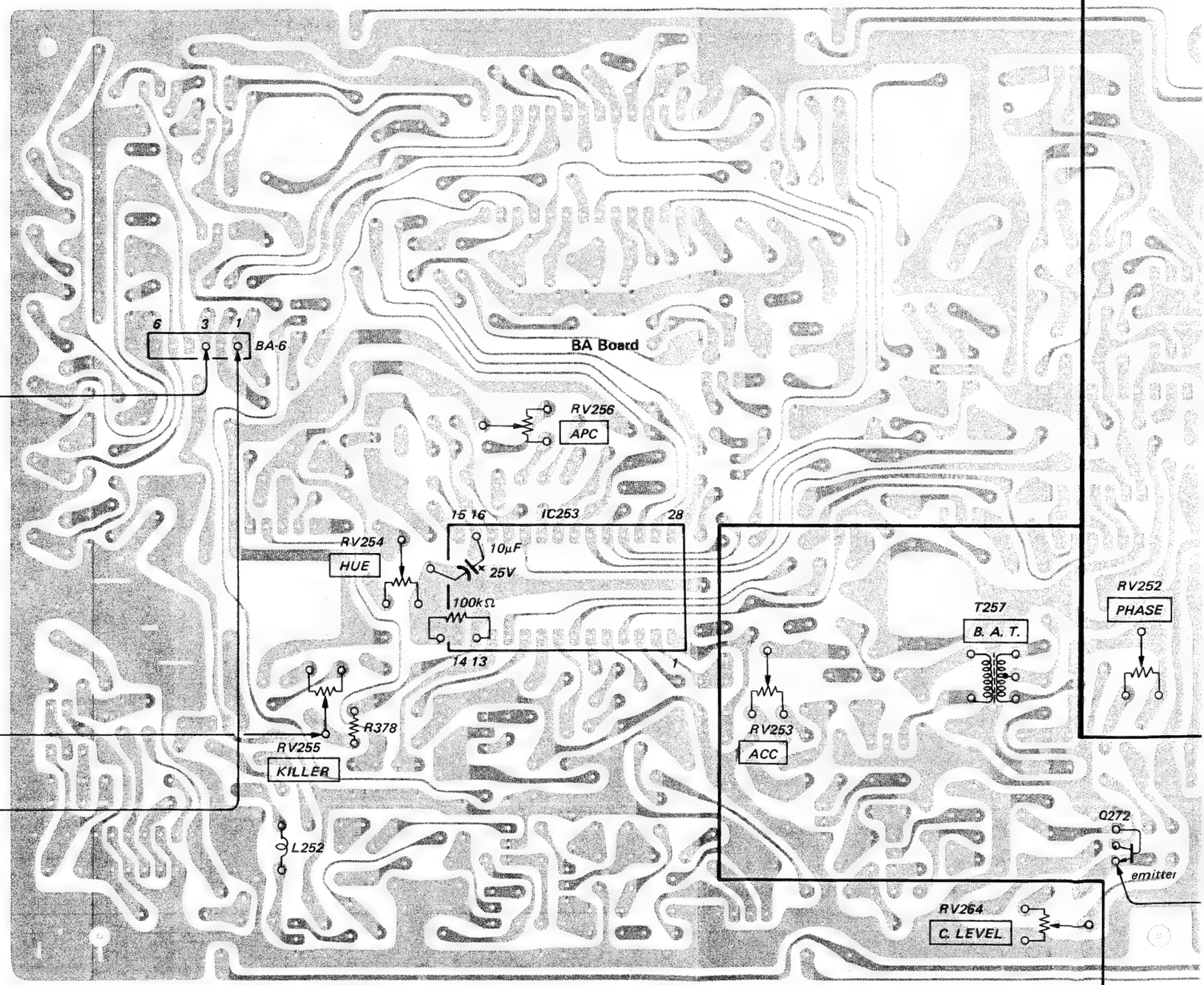
KILLER POINT ADJUSTMENT

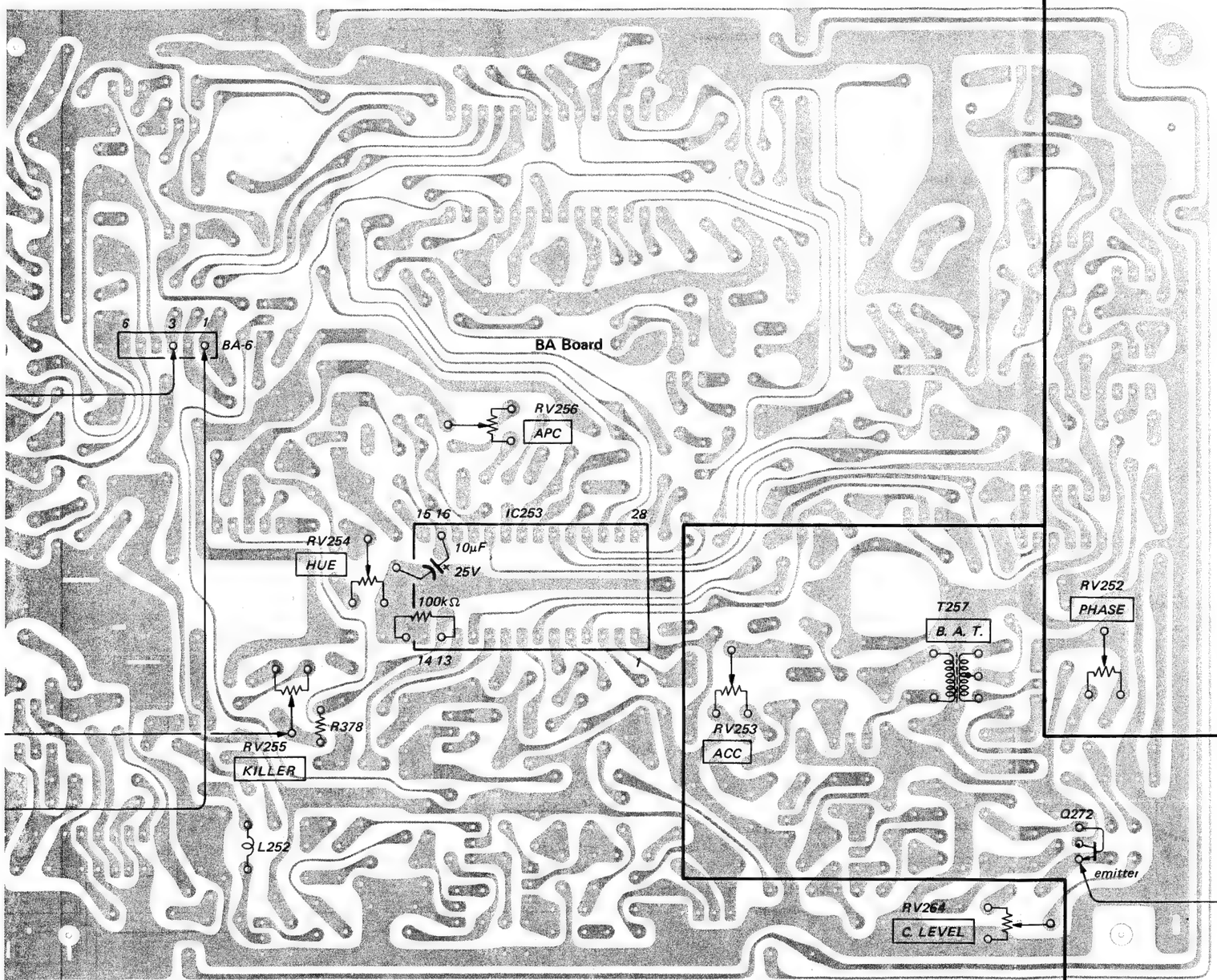
1. *Tune in an off-air signal.*
2. *Connect digital multimeter between R255 and R378.*
3. *Adjust RV255 so that the voltage is 8.3V dc.*

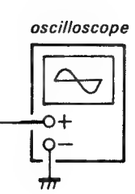
CHROMA TRAP ADJUSTMENT

1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
2. *Observe connector BA-6 pin (1) waveform on the oscilloscope and adjust L252 for minimum chroma component.*







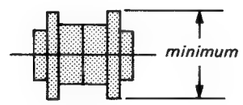


HUE ADJUSTMENT

1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
   COLOR 50%
2. *Set RV505 (user control HUE VR) at mechanical center.*
3. *Adjust RV252 so that the hue is optimized.*

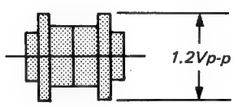
BAT ADJUSTMENT

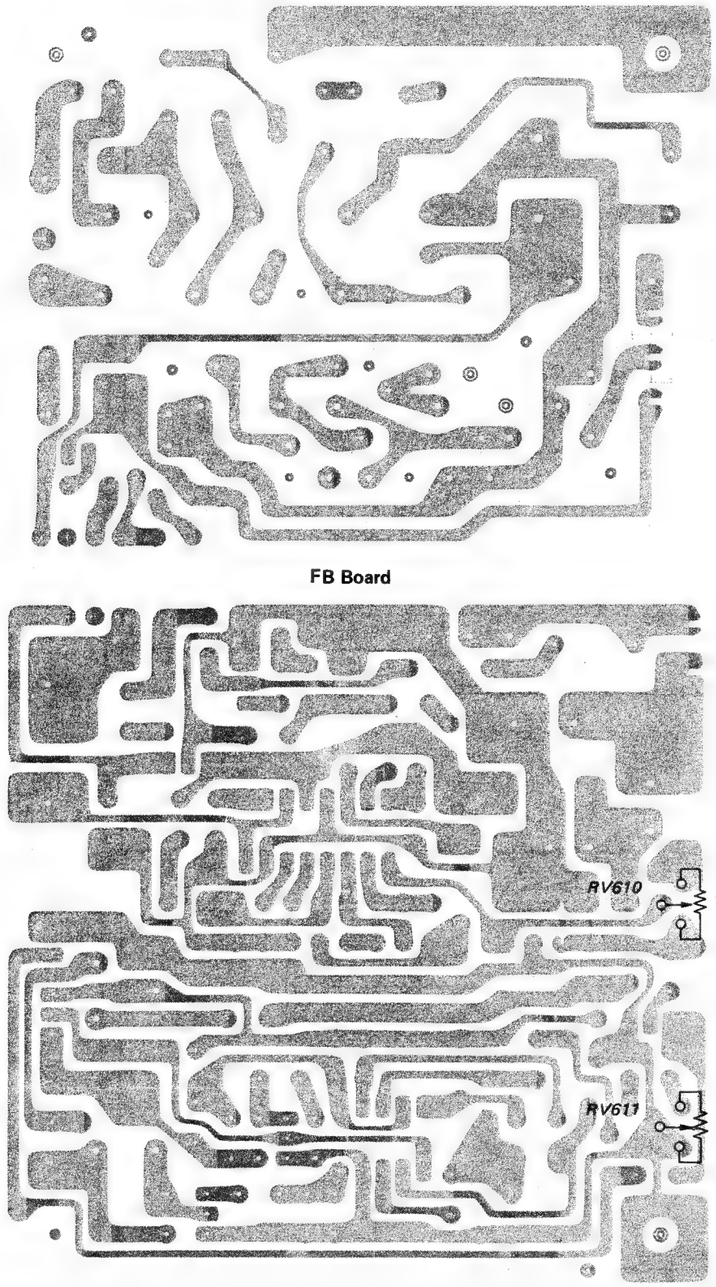
1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
   COLOR 50%
2. *Observe Q272 (E) waveform on the oscilloscope and adjust T257 for minimum chrome component.*



ACC ADJUSTMENT

1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
   COLOR 50%
2. *Observe Q272 (E) waveform on the oscilloscope and adjust RV253 so that the signal component is 1.2 Vp-p.*





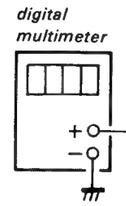
FB Board

+B MAX CHECK
R881 ADJUSTMENT

Be sure to perform this adjustment when replacing the following parts (marked ◪ on the schematic)

◪ *R880, R881, R882, R883, R884, R885, R886, RV807, D821, D822, Q804, Q805, CP800*

1. *Input a monoscope signal. (PICTURE 80% BRT 50%)*
2. *Turn +B ADJ VR (RV807) fully so that +B value is maximum. (Input of 130V $^{+2}_{-0}$ V AC)*
3. *Confirm that TP91 value is less than 31.5V dc.*

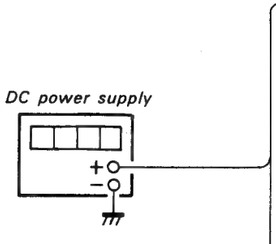


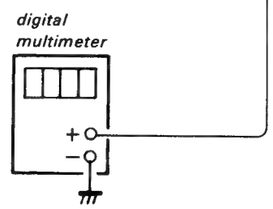
HV PROTECTOR OPERATION CHECK
HOLD DOWN R856 ADJUSTMENT

Be sure to perform this adjustment when replacing the following parts (marked ◪ on the schemacic)

◪ *R807, R818, R822, R826, R855, R856, R873, R874, R876, D800, D805, D824, D825, IC802*

1. *Input a monoscope signal. (PICTUER 80% BRT 50%)*
2. *Comfirm that voltage of 19.6±1.6V appears between TP61 and GND during input of 120V AC.*
3. *Confirm that the HOLD-DOWN cirucit operates (the raster disappears) by adding 24.95 $^{+0.05}_{-0}$ V DC between TP61 and GND.*





BLANKING OPERATION CHECK
R859 ADJUSTMENT

Be sure to perform this adjustment when replacing the following parts (marked ◪ on the schematic)

◪ *R456, R457, R807, R819, R820, R822, R859, R862, D800, D801, IC253, IC802*

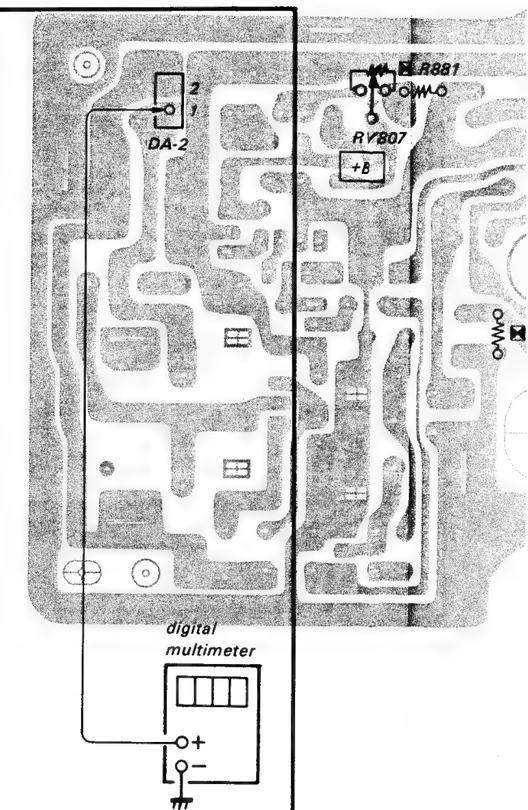
1. *Input a monoscope signal. (PICTURE 80% BRT 50%)*
2. *Turn +B ADJ VR (RV807) fully so that +B value is DOWN.*
3. *Confirm that the BLANKING circuit opeates (the raster disappears) by adding 24.8 $^{+0}_{-0.1}$ V DC between TP91 and GND.*

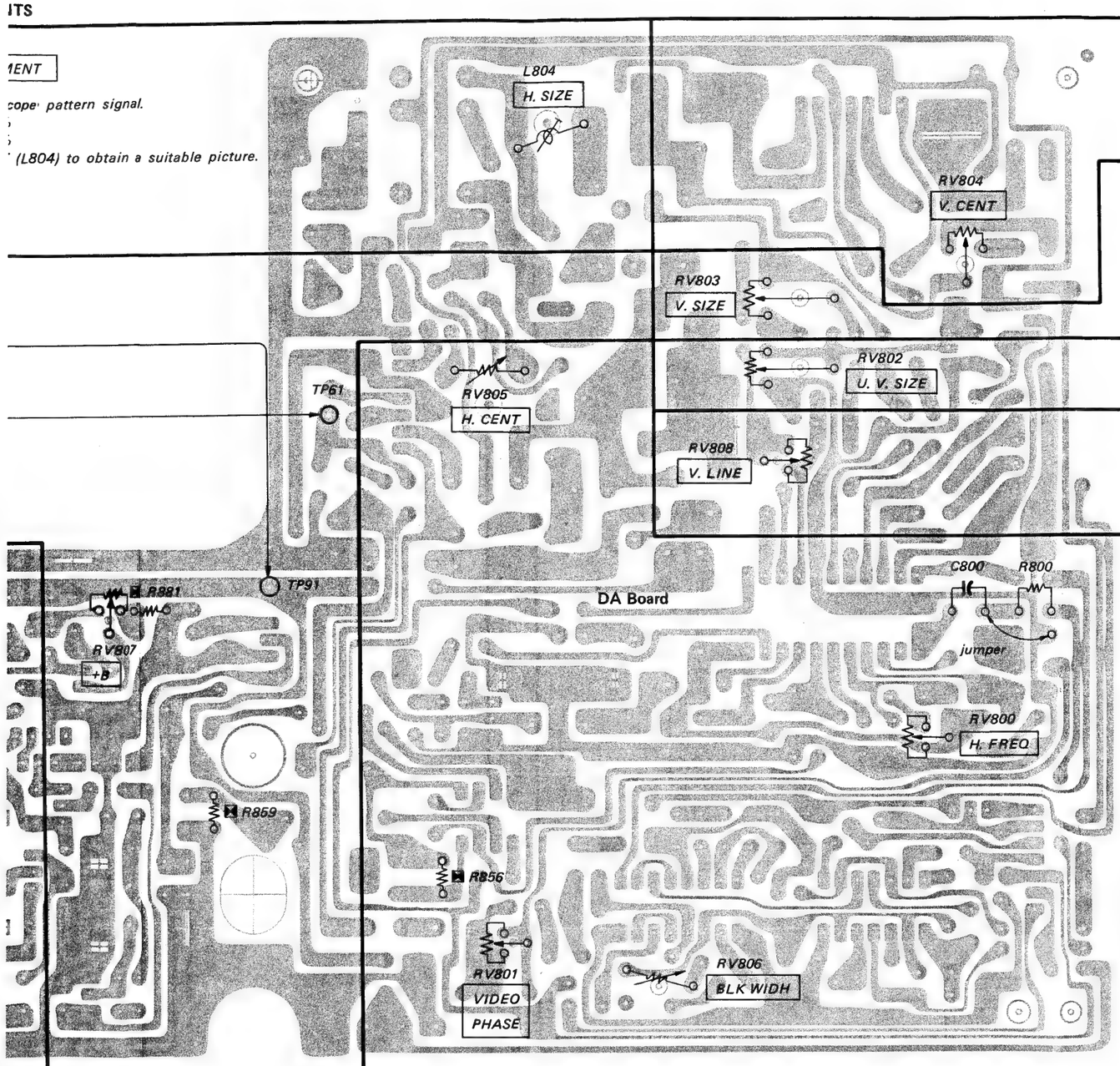
POWER SUPPLY OPERATION CHECK

1. *Input a monoscope signal.*
2. *Connect a digital voltmeter to connector DA-2.*
3. *Adjust RV610 for 15.0±0.2V DC.*

H.SIZE ADJUSTMENT

1. *Input a monoscope pattern signal.*
   PICTURE 80%
   BRT 50%
2. *Set the H.SIZE (L804) to obtain a suitable pict*





(L804) to obtain a suitable picture.

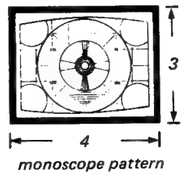
V. CENT ADJUSTMENT

1. *Input a monoscope pattern signal.*
   PICTURE 80%
   BRT 50%
2. *Adjust with RV804 so that picture is cetered.*

V. SIZE ADJUSTMENT

1. *Input a monoscope pattern signal.*
   PICTURE 80%
   BRT 50%
2. *Set the V.SIZE (RV803) to obtain a suitable picture.*

UNDER-SCAN V.SIZE ADJUSTMENT



monoscope pattern

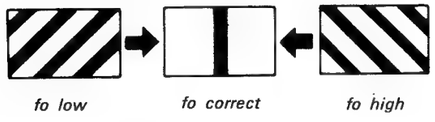
1. *Input a monoscope pattern signal.*
   PICTURE 80%
   BRT 50%
   SCAN UNDER
2. *Adjust UN V.SIZE (RV802) so that the monoscope pattern of H.SIZE and V.SIZE is 4:3.*

V LIN ADJUSTMENT

1. *Input a monoscope pattern signal.*
   PICTURE 80%
   BRT 50%
2. *Set the V.LIN (RV808) to obtain a suitable picture.*

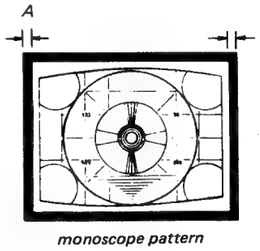
H.FREQ ADJUSTMENT

1. *Input a monoscope pattern signal.*
   PICTURE 80%
   BRT 50%
2. *Connect to ground C800 and R800 with Jamper.*
3. *Adjust with RV800 (H.FREQ) as shown in figure.*



H BLANKING ADJUSTMENT

1. *Input a monoscope pattern signal.*
   PICTURE 80%
   BRT 50%
   SCAN UNDER
2. *Adjust VIDEO PHASE (RV801) and H.BLK WIDTH (RV806) to be A=B, as shown in the figure.*

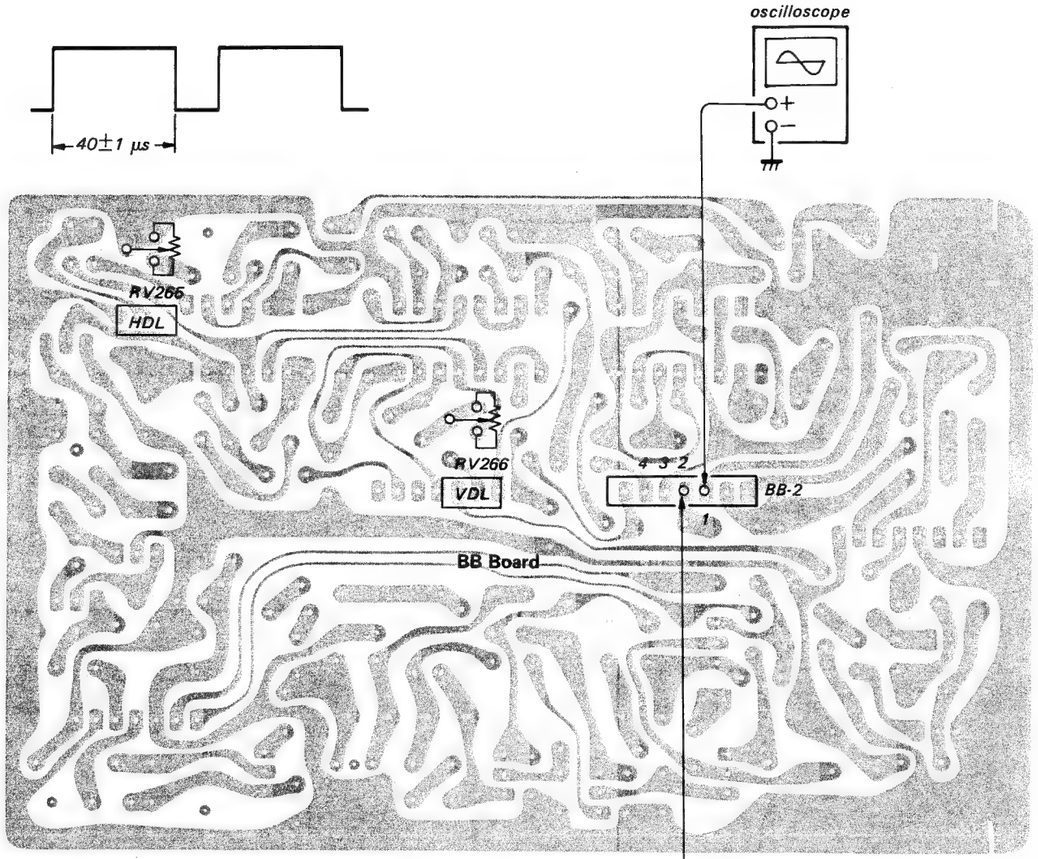


monoscope pattern

4-4. BB BOARD ADJUSTMENTS

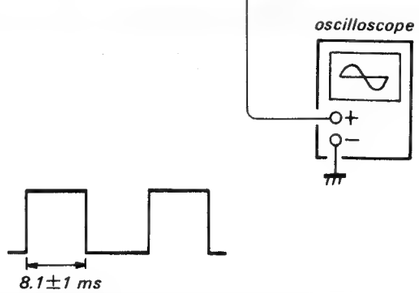
1H DELAY ADJUSTMENT

1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
2. *Observe the connector BB-2 pin (1) waveform on the oscilloscope, and adjust RV265 for 40±1 μS.*



V.DELAY ADJUSTMENT

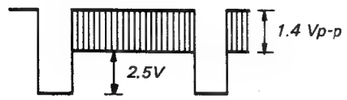
1. *Input a color bar signal.*
   PICTURE 80%
   BRT 50%
2. *Observe the connector BB-2 pin (2) waveform on the oscilloscope, and adjust RV266 for 8.1±1 ms.*

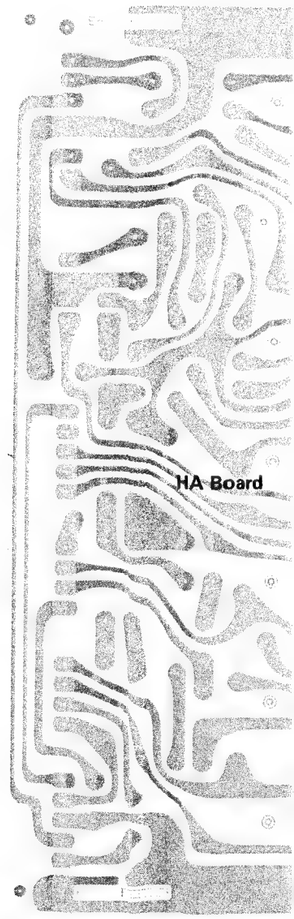


4-5. HA BOARD ADJUSTMENT

SUB CONTRAST ADJUSTMENT

1. *Input a monoscope pattern signal.*
   PICTURE 100%
   BRT 50%
2. *Observe connector BA-6 pin (3) on the oscilloscope and adjust RV508.*
   So that the signal component is 1.4 Vp-p.



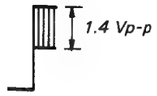


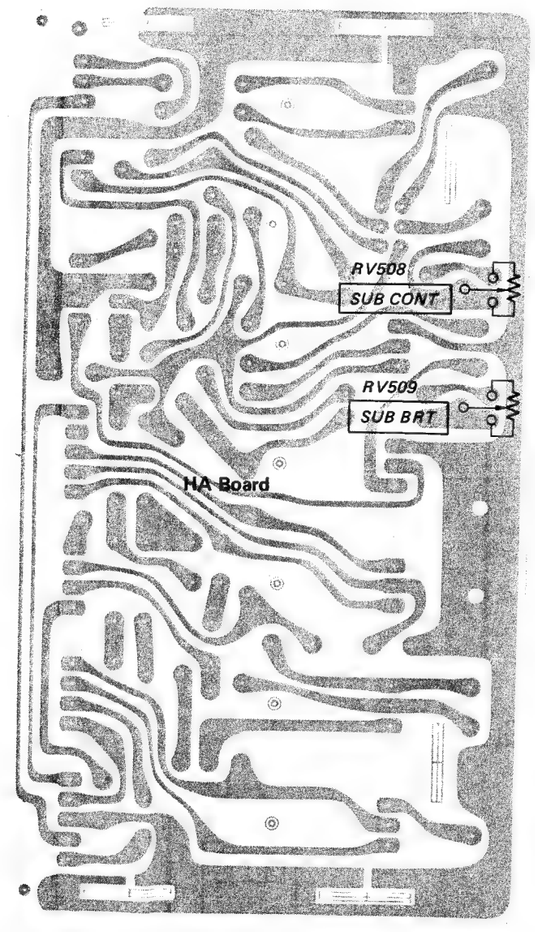
NT

1 signal.

1 ③ on the oscilloscope

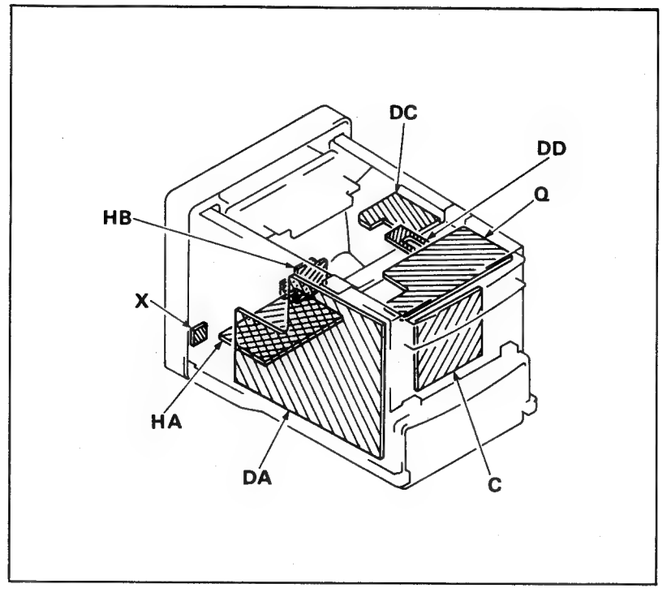
ent is 1.4 Vp-p.

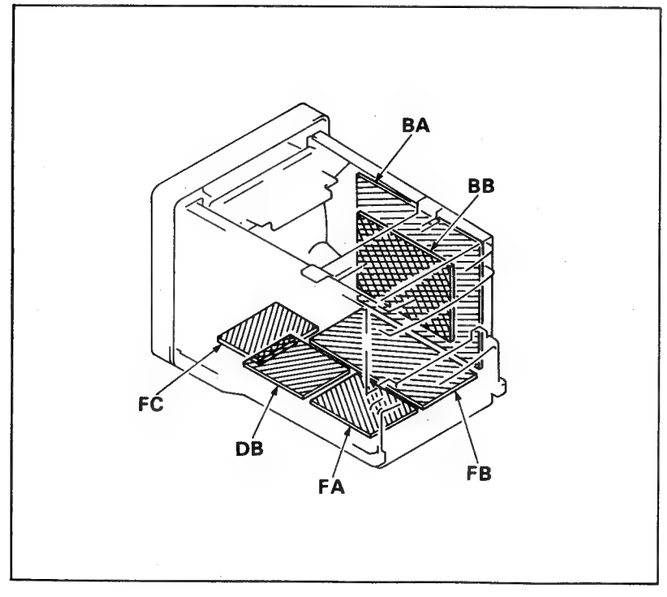




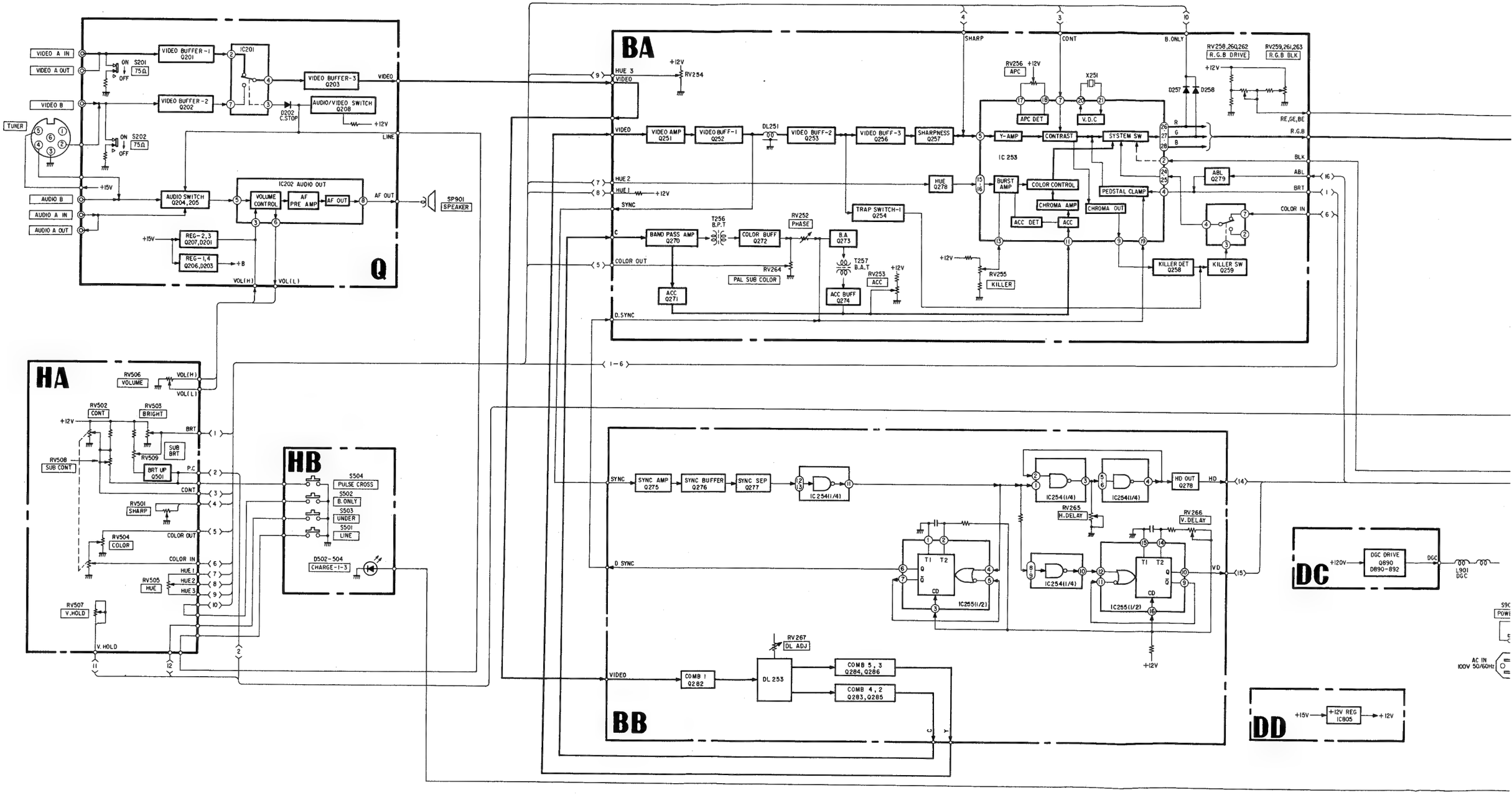
SECTION 5
DIAGRAMS

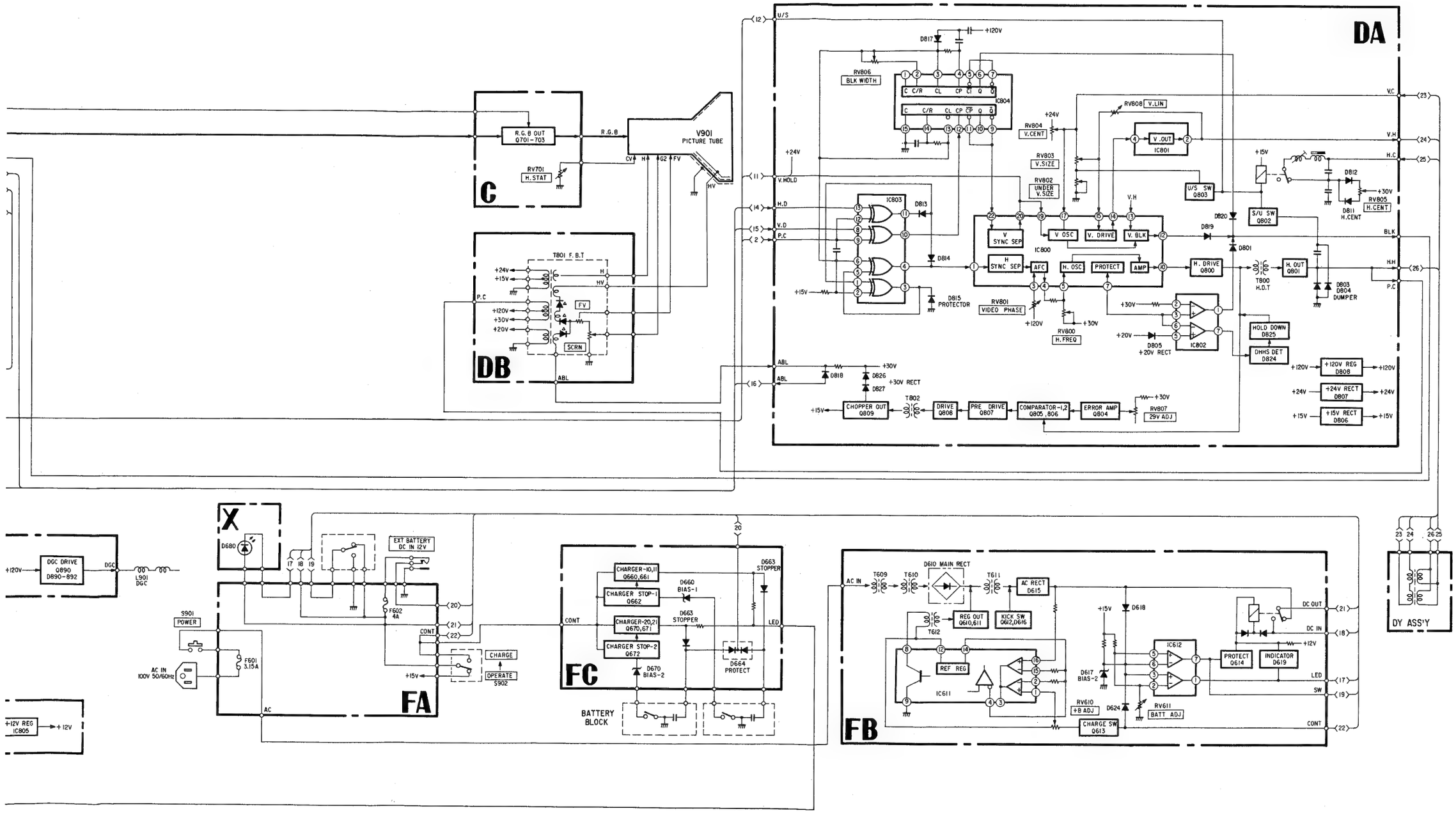
5-1. CIRCUIT BOARDS LOCATION





5-2. BLOCK DIAGRAM




DA
C
DB
X
FA
FC
FB
R.G.B OUT Q701~703
V901 PICTURE TUBE
RV701 H.STAT
T801 F.B.T
SCRN
U/S
V.HOLD
H.D
V.D
P.C
ABL
RV806 BLK WIDTH
IC804
RV804 V.CENT
RV808 V.LIN
RV803 V.SIZE
RV802 UNDER V.SIZE
IC801
U/S SW Q803
S/U SW Q802
RV805 H.CENT
D811 H.CENT
D812
IC803
D813
D814
D815 PROTECTOR
V SYNC SEP
H SYNC SEP
AFC
IC800
V OSC
V. DRIVE
V. BLK
H. OSC
PROTECT
AMP
RV801 VIDEO PHASE
RV800 H.FREQ
H. DRIVE Q800
T800 H.D.T
H. OUT Q801
D803 D804 DUMPER
D801
D819
D820
D818
D805 +20V RECT
IC802
HOLD DOWN D825
DHHS DET D824
+120V REG D808
+24V RECT D807
+15V RECT D806
D817
D818
D826
D827 +30V RECT
T802
CHOPPER OUT Q809
DRIVE Q808
PRE DRIVE Q807
COMPARATOR-1,2 Q805,806
ERROR AMP Q804
RV807 29V ADJ
V.C
V.H
H.C
BLK
H.H
P.C
DGC DRIVE Q890 D890~892
L901 DGC
+12V REG IC805
EXT BATTERY DC IN 12V
D680
F602 4A
S901 POWER
F601 3.15A
AC IN 100V 50/60Hz
CHARGE
OPERATE S902
CHARGER-10,11 Q660,661
CHARGER STOP-1 Q662
CHARGER-20,21 Q670,671
CHARGER STOP-2 Q672
D660 BIAS-1
D663 STOPPER
D664 PROTECT
D670 BIAS-2
BATTERY BLOCK
CONT
LED
AC IN
T609
T610
T611
D610 MAIN RECT
AC RECT D615
REG OUT Q610,611
KICK SW Q612,D616
T612
REF REG
IC611
IC612
D617 BIAS-2
D618
D624
RV610 +B ADJ
RV611 BATT ADJ
CHARGE SW Q613
PROTECT Q614
INDICATOR D619
DC OUT
DC IN
SW
DY ASS'Y

5-3. SCHEMATIC DIAGRAMS

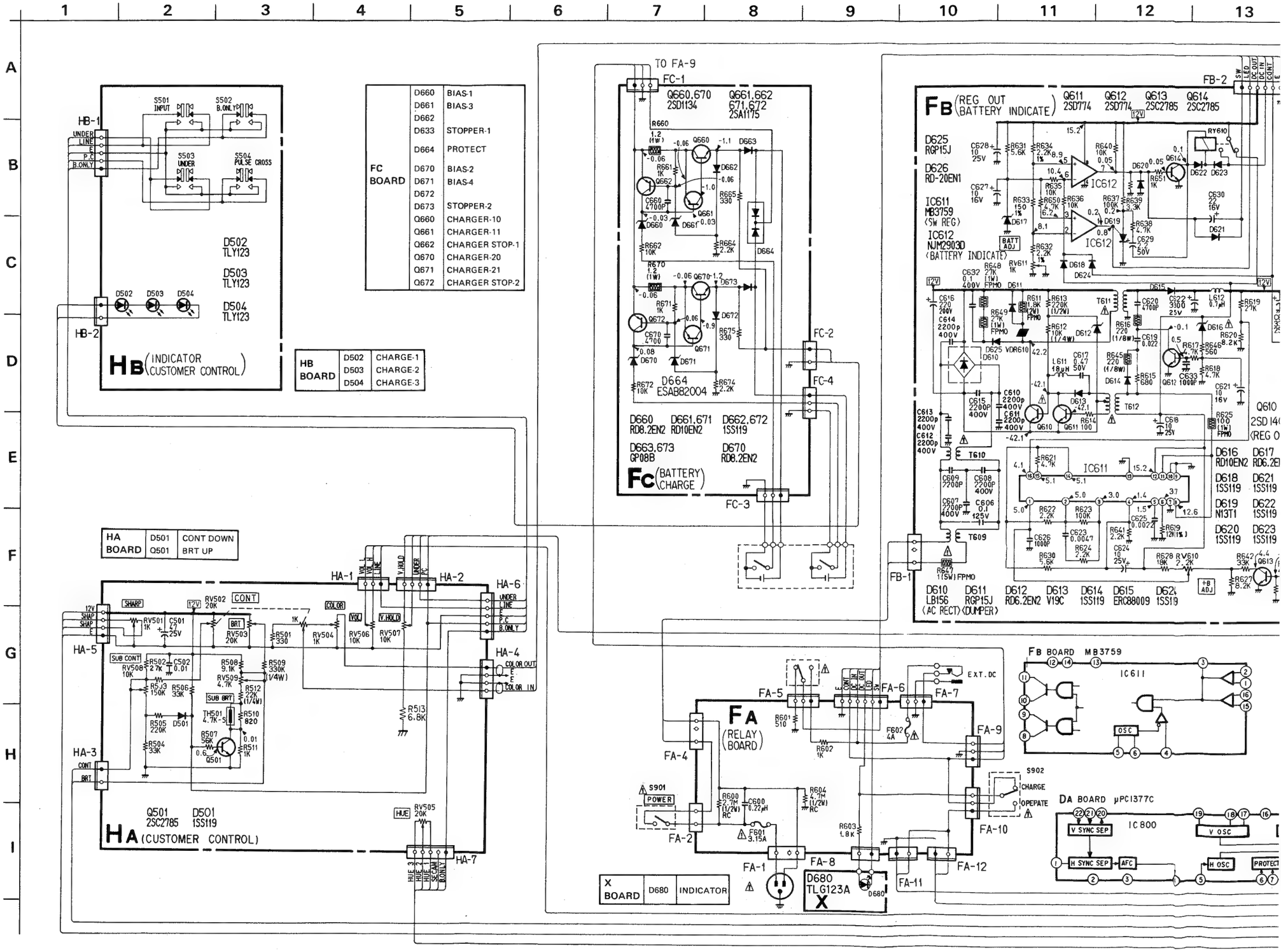
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

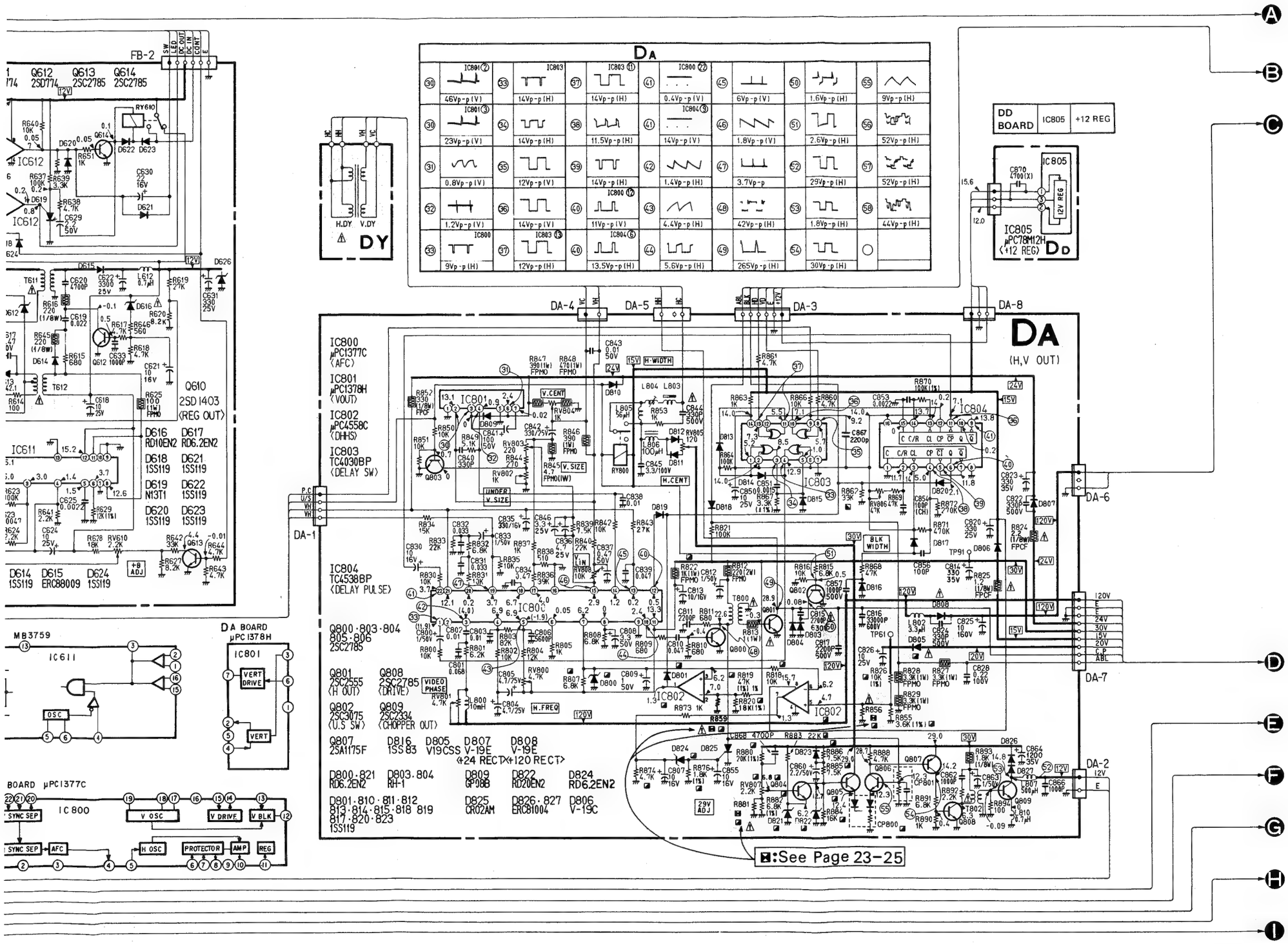
Note: Les composants identifiés par une trame et par une marque ⚠ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ
  - : nonflammable resistor.
  - : fusible resistor.
  - △ : internal component.
  - : panel designation.
- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Select the resistance value according to SAFETY RELATED ADJUSTMENT.
- When replacing components idenyified by ◪, make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⧓ and repeat the adjustment until the specified value is achieved. (Refer to R881, R856 and R859 adjustment on page 4-4～4-6.)
  When replacing the part in below table, be shre to perfrom the replated adjusyment.

Part replaced (◪)	Adjustment (⧓)
R880, R881, R882, R883, R884, R885, R886, RV807, D821, D822, Q804, Q805, CP800	R881 adjustment
R807, R818, R822, R826, R855, R856, R873, R874, R876, D800, D805, D824, D825, IC802	R856 adjustment
R456, R457, R807, R819, R820, R822, R859, R862, D800, D801, IC253, IC802	R859 adjustment

- All variable and adjustable resistors ahve onaracteristic curve B, unless otherwise noted.
- Readings are taken with a color-bar signal input to LINE A.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10MΩ digital multimeter.
- : adjustment for repair.
- Voltage variations may be noted due to normal production tolerances.
- ▬▬ : B+ bus.
- ▬ ▬ : B− bus.
- ✳ : Can not be measured.



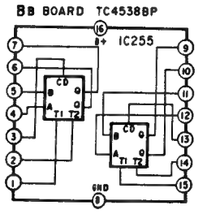


FB BOARD	D610	AC RECT
	D611	DUMPER-1
	D612	BIAS-1
	D613	PROTECT
	D614	DUMPER-3
	D615	RECT
	D616	C. STOP-3
	D617	BIAS-2
	D618	C. STOP-2
	D619	INDICATOR
	D620	DISCHARGE
	D621	DISCHARGER
	D622	DUMPER-4
	D623	DUMPER-5
	D624	C. STOP-1
	D625	DUMPER-2
	D626	
	IC611	SW REG
	IC612	BATTERY INDICATE
	Q610	REG OUT
	Q611	DRIVE
	Q612	KICK SW
	Q613	CHARGE SW
	Q614	PROTECT

DA BOARD	D800	BIAS-1
	D801	STOPPER-1
	D802	
	D803	DUMPER-1
	D804	DUMPER-2
	D805	20V RECT
	D806	15V RECT
	D807	+24 RECT
	D808	+120 RECT
	D809	PROTECTOR
	D810	PROTECTOR
	D811	H. CENT-1
	D812	H. CENT-2
	D813	STOPPER-2
	D814	STOPPER-3
	D815	PROTECTOR
	D817	STOPPER-4
	D818	ABL
	D819	STOPPER-6
	D820	STOPPER-5
	D821	BIAS-2
	D822	STOPPER
	D823	PROTECTOR
	D824	DHHS DET
	D825	HOLD DOWN
	D826	30V RECT
	D827	30V RECT
	IC800	AFC
	IC801	V OUT
	IC802	DHHS
	IC803	DELAY SW
	IC804	DELAY PULSE
	Q800	H DRIVE
	Q801	H OUT
	Q802	U/S SW
	Q803	U/S SW
	Q804	ERROR AMP
	Q805	COMPARATOR-1
	Q806	COMPARATOR-2
	Q807	PRE DRIVE
	Q808	DRIVE
	Q809	CHOPPER OUT

BA BOARD	D253	BIAS-1
	D255	ACC
	D257	C. STOP-1
	D258	C. STOP-2
	IC251	KILLER
	IC253	Y.PAL
	Q251	VIDEO AMP
	Q252	VIDEO BUF-1
	Q253	VIDEO BUF-2
	Q254	TRAP SW
	Q256	VIDEO BUF-3
	Q257	SHARPNESS
	Q258	KILLER DET
	Q259	KILLER SW-1
	Q270	B.P.A
	Q271	ACC
	Q272	COLOR BUF
	Q273	B.A
	Q274	ACC BUF
	Q278	HUE
	Q279	ABL

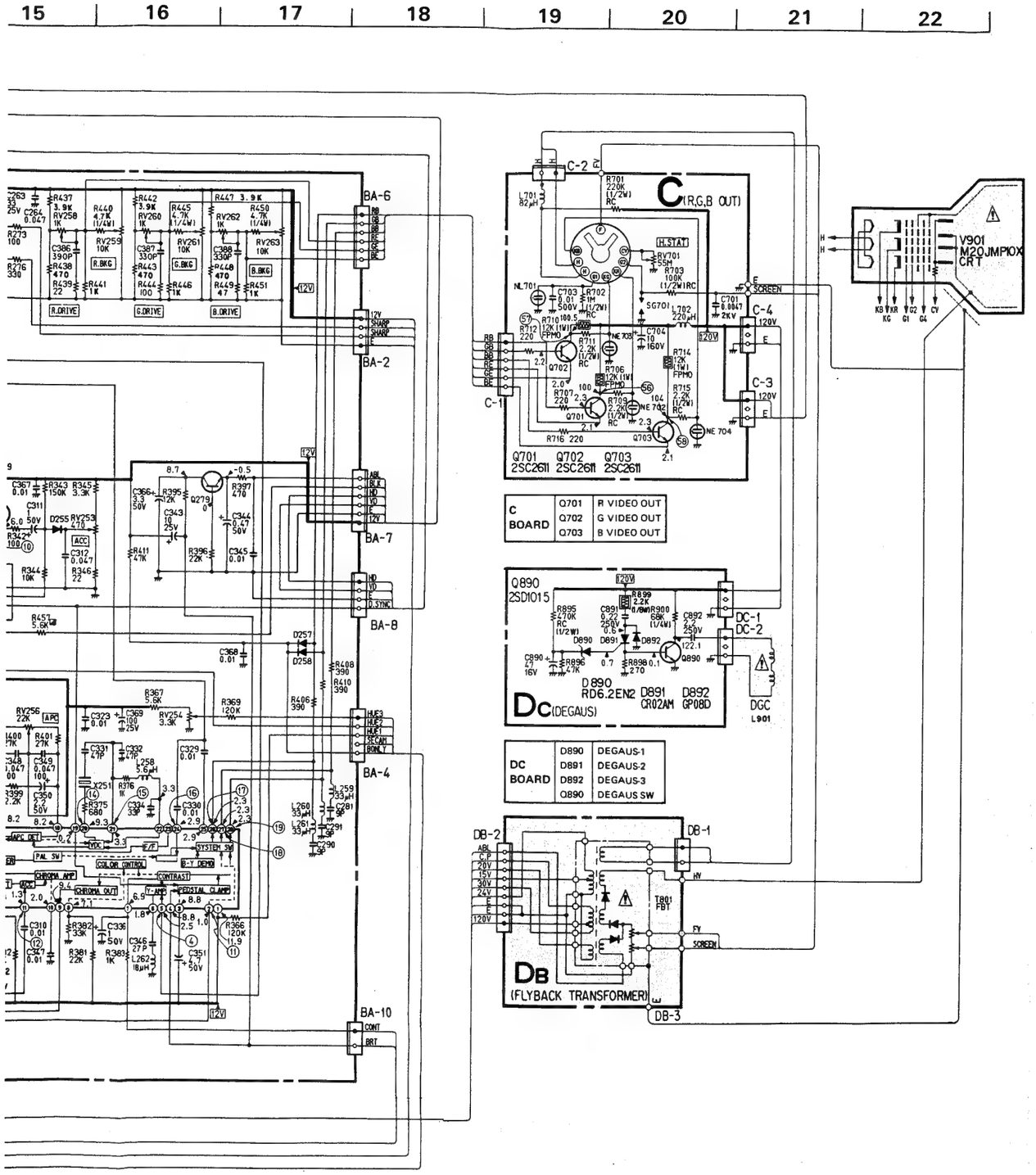
BB BOARD TC4538BP



BB BOARD	IC254	H MM-1
	IC255	H/V MM
	Q275	SYNC AMP
	Q276	SYNC BUF-1
	Q277	SYNC SEP
	Q278	SYNC BUF-2

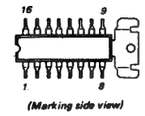
BB					
③	3.5Vp-p (H)	⑳	2Vp-p (H)	㉕	11Vp-p (H)
○		㉑	12Vp-p	㉖	15.5Vp-p (H)
○		㉒	11Vp-p (H)	㉗	13Vp-p (V)
○		㉓	0.13Vp-p	㉘	12Vp-p (H)
○		㉔	12Vp-p (H)	㉙	12Vp-p (V)

Q BOARD	D201	REG-3
	D202	C STOP
	D203	REG-4
	D204	PROTECT-1
	D205	PROTECT-2
	IC201	VIDEO SW
	IC202	AUDIO OUT
	Q201	VIDEO BUF-1
	Q202	VIDEO BUF-2
	Q203	VIDEO BUF-3
	Q204	AUDIO SW-1
	Q205	AUDIO SW-2
	Q206	REG-1
	Q207	REG-2
	Q208	A/V SW

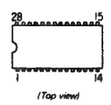


5-4. SEMICONDUCTORS

AN5250



μPC1365C

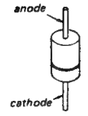


2SA933S
2SC1740S

2SD774

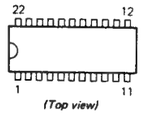
CR02AM-4
CR02AM-8

RGP15J

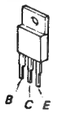


CX-20061

μPC1377C

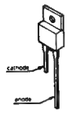


2SC2334
2SD1134

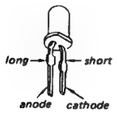


2SD1015
2SD789

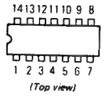
ERC88-009



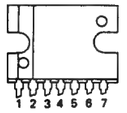
TLG123A
TLY123



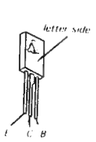
HD14011BP
HD14538BP
TC4011BP
TC4030BP
μPD4030BC



μPC1378H-P

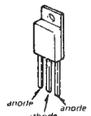


2SC2456
2SC2611

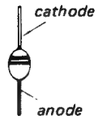


2SK105A

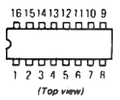
ESAB82-004



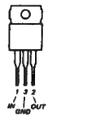
U05G



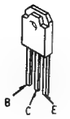
HD14538BP
TC4538BP



μPC78M12H

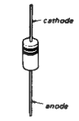


2SC2555

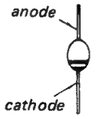


1SS83
1S1555
1S2076
ERC81-004
HZ6C2
RD10E-N2
RD12EB2
RD20E-N2
RD4.3E-N1
RD6.2E-N2
RD8.2E-N2

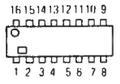
GP08B
GP08D
RH-1
RH-1A



V19C
V19CSS
V19E

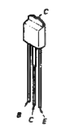


MB3759-SNY

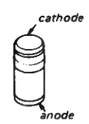


2SA1048
2SA1115
2SC2458
2SC2603
2SC403SP

2SC3075



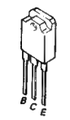
LB156



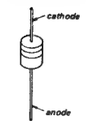
NJM2903D
NJM4558D
μPC4558C

2SA1175
2SC2785

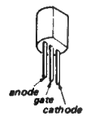
2SD1403



1SS119
1SS133
1SS148

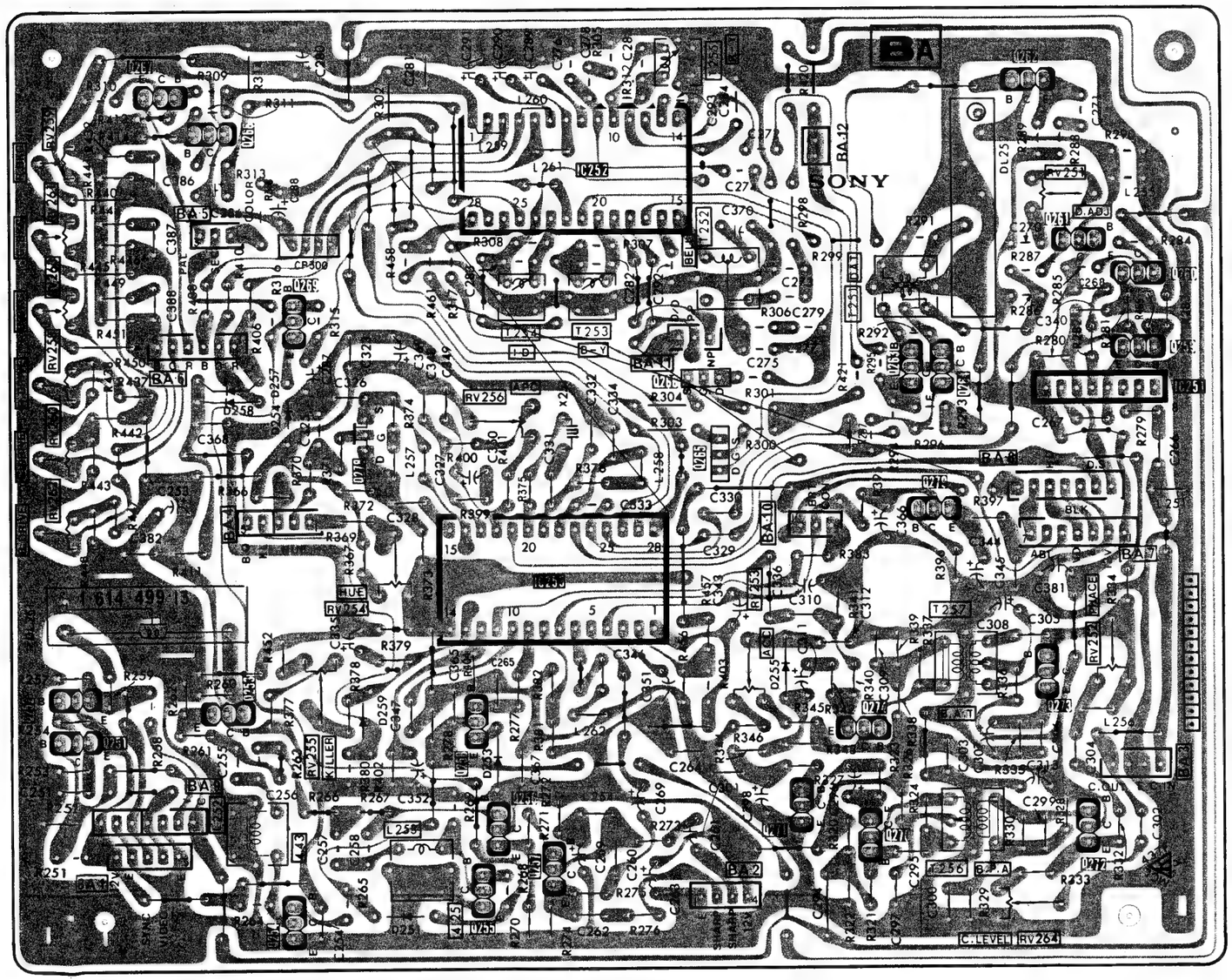


N13T1



— BA Board —

Q		Q
IC	252 251 253 278 258 256 IC253 257 271 274 270 279 273 259 IC251 272	IC
D	257 258 253 255	D
ADJ	RV258 RV263 RV255 RV254 RV256 RV253 RV264 RV252	ADJ



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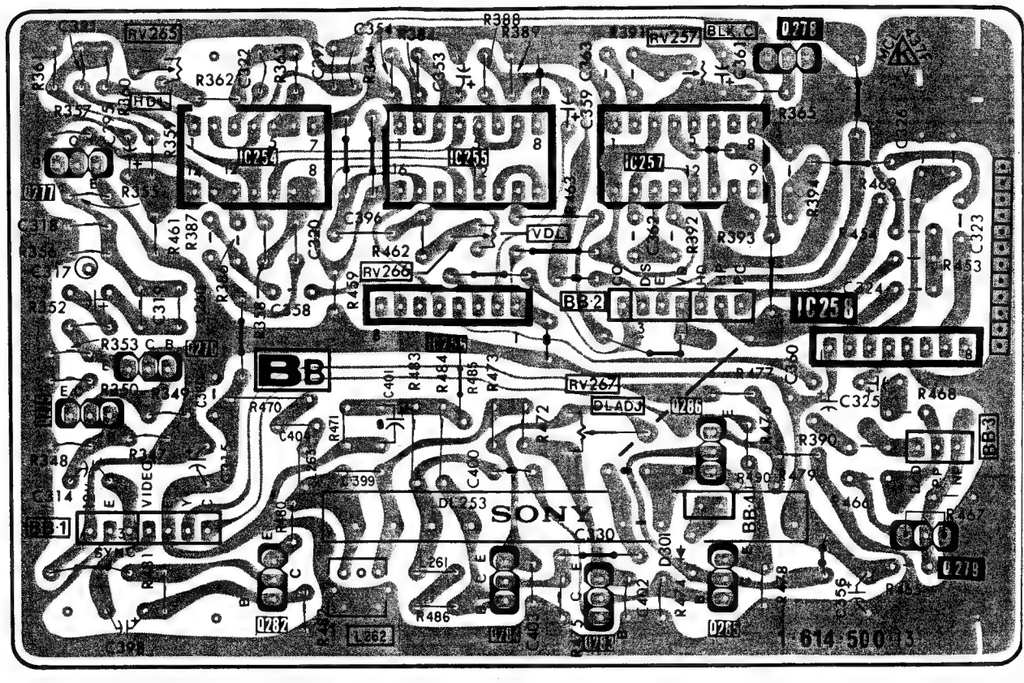
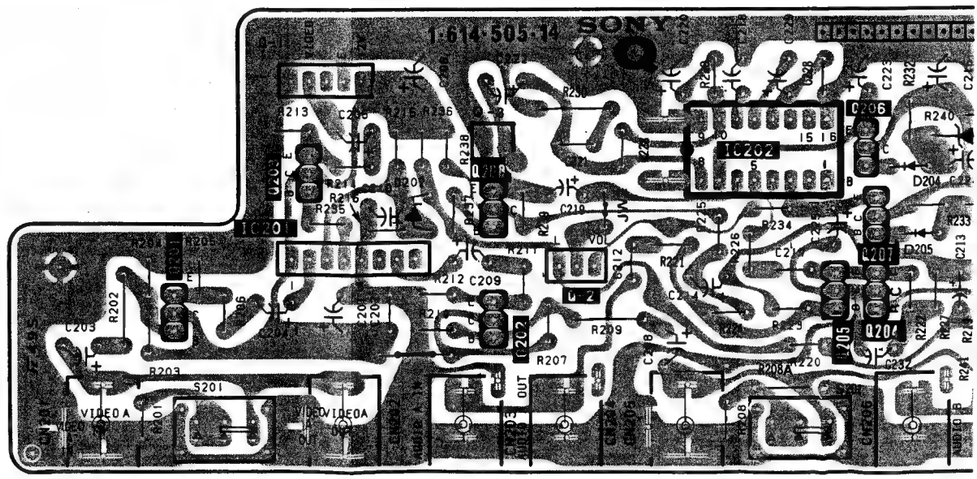


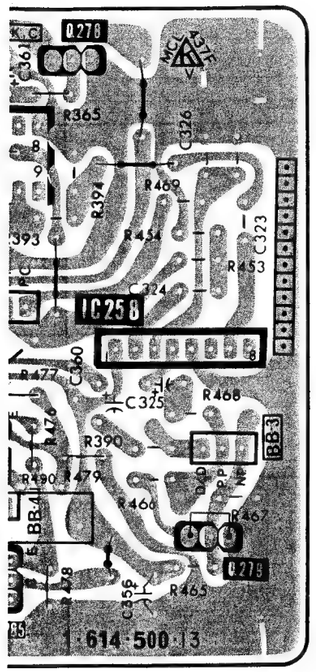
— Q Board —

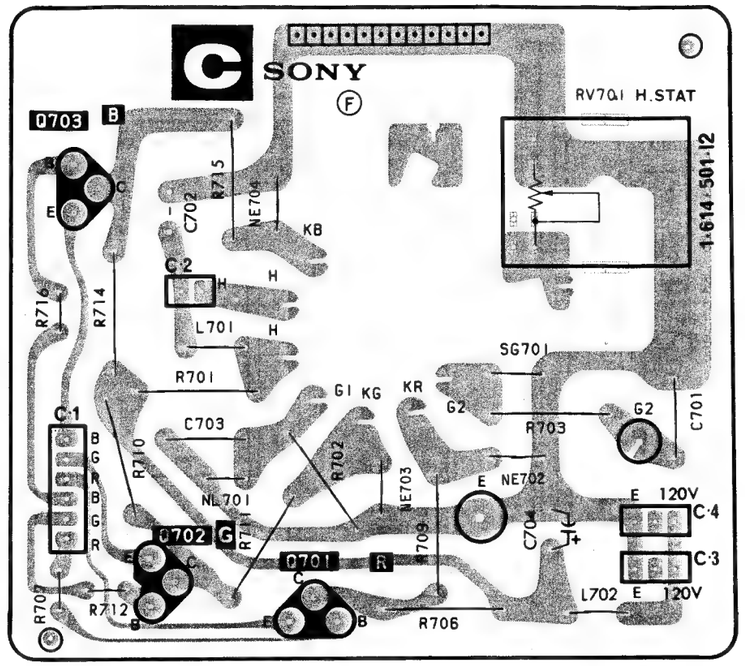


X

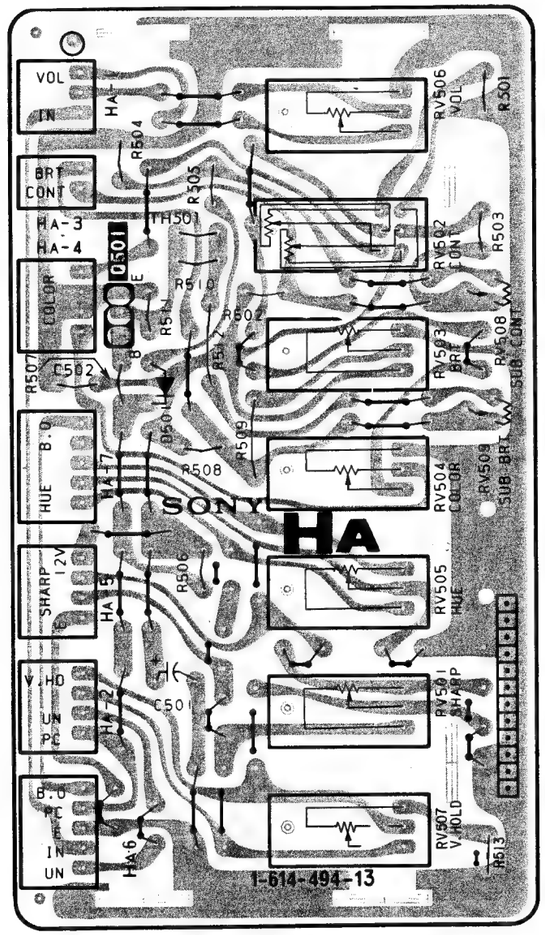
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

— C Board —

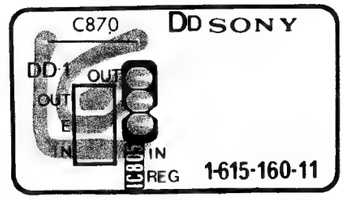




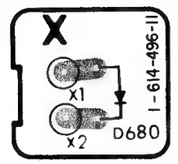
— HA Board —

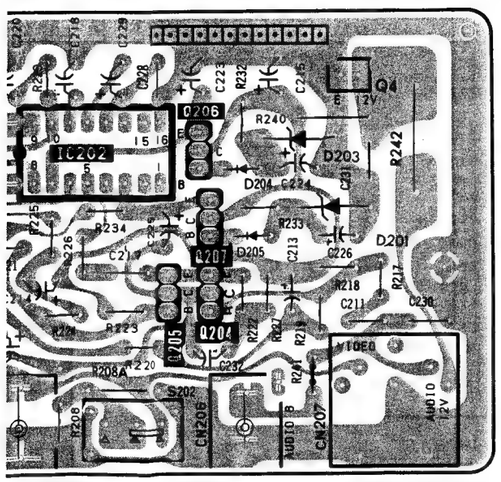


— DD Board —

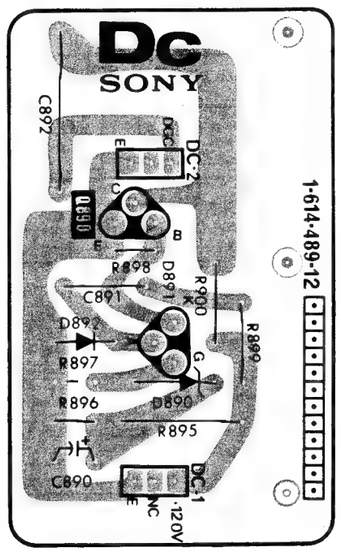


— X Board —

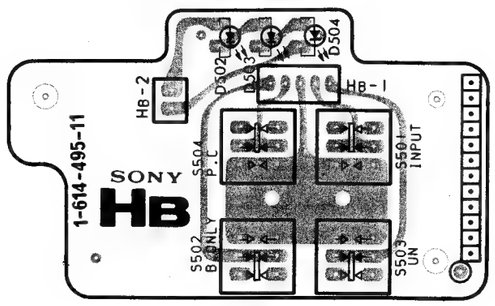




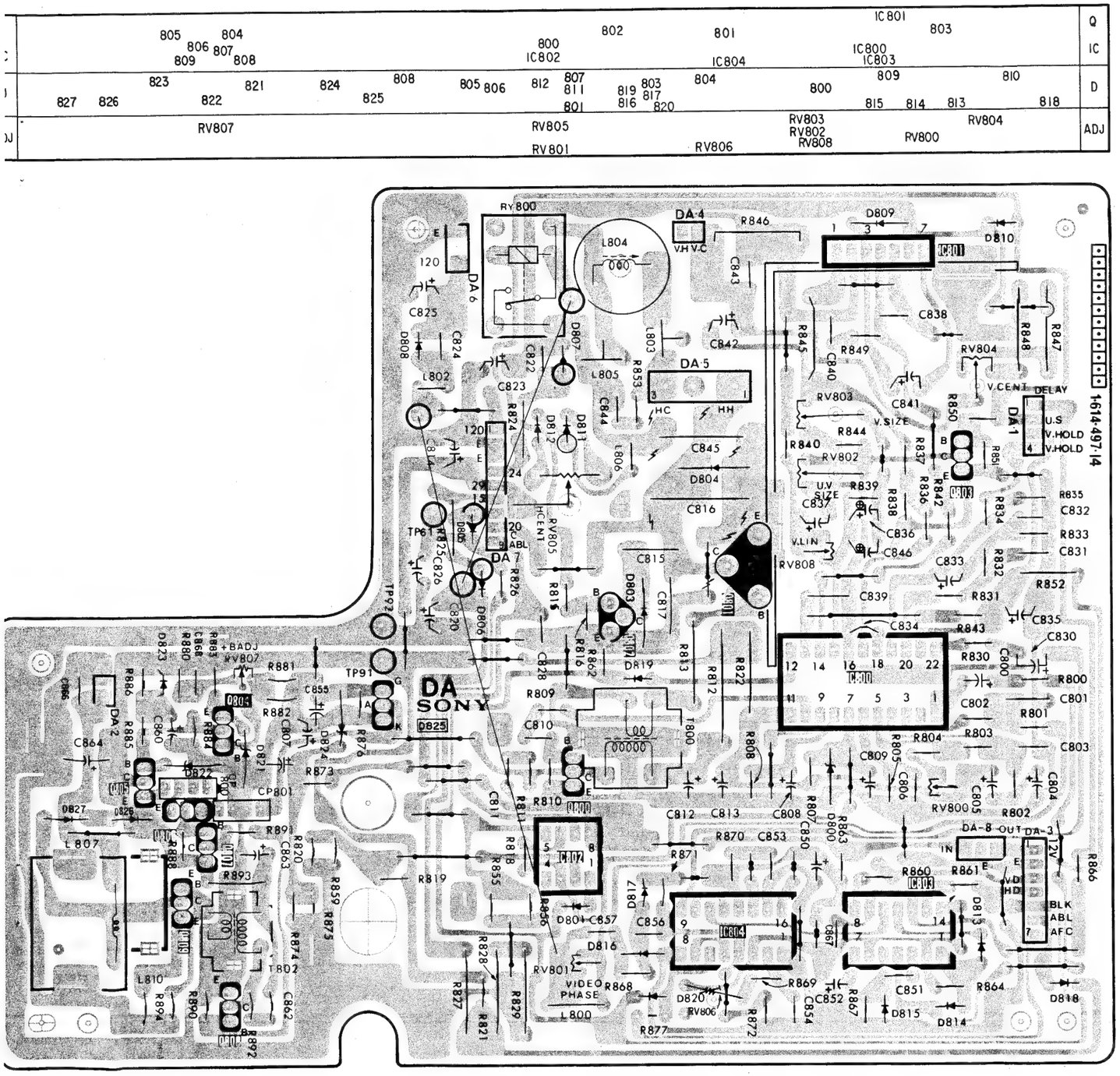
— DC Board —



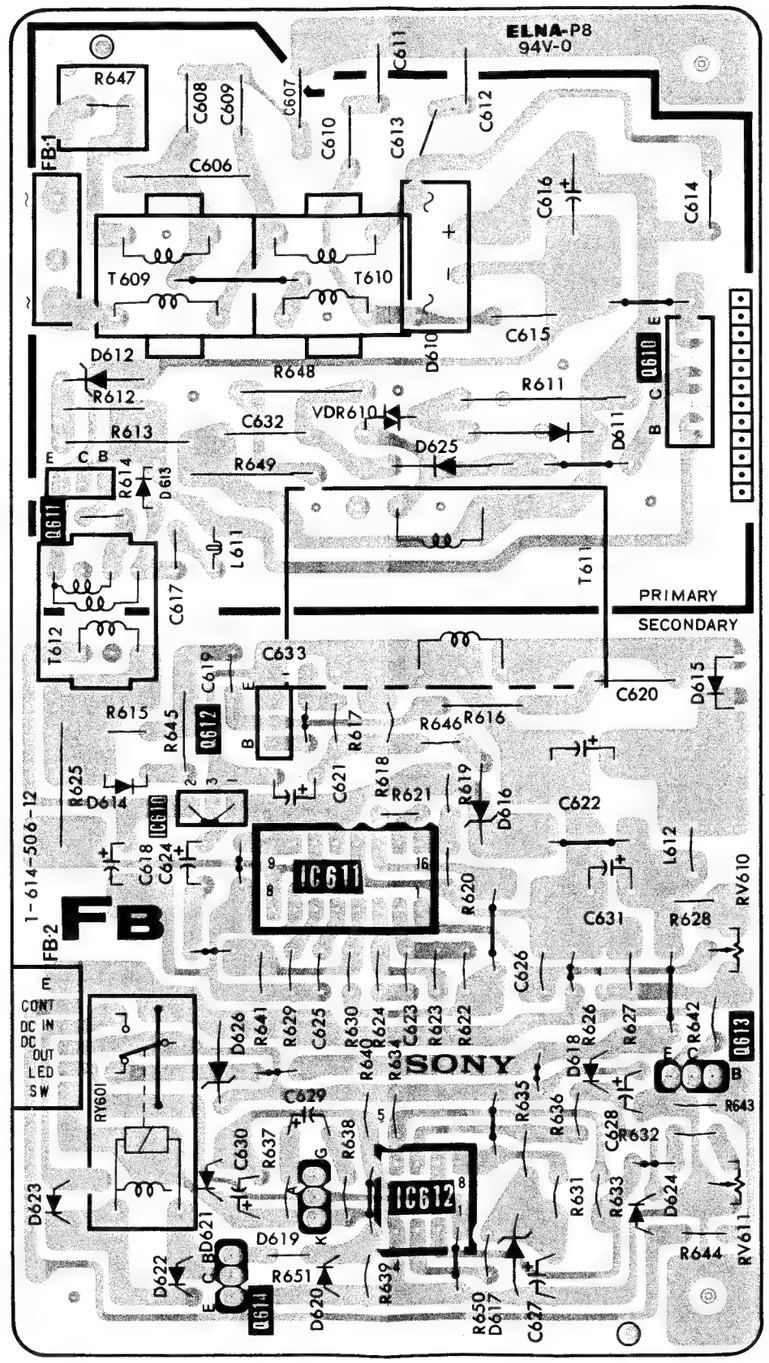
— HB Board —



— DA Board —



— FB Board —



— FA Board —

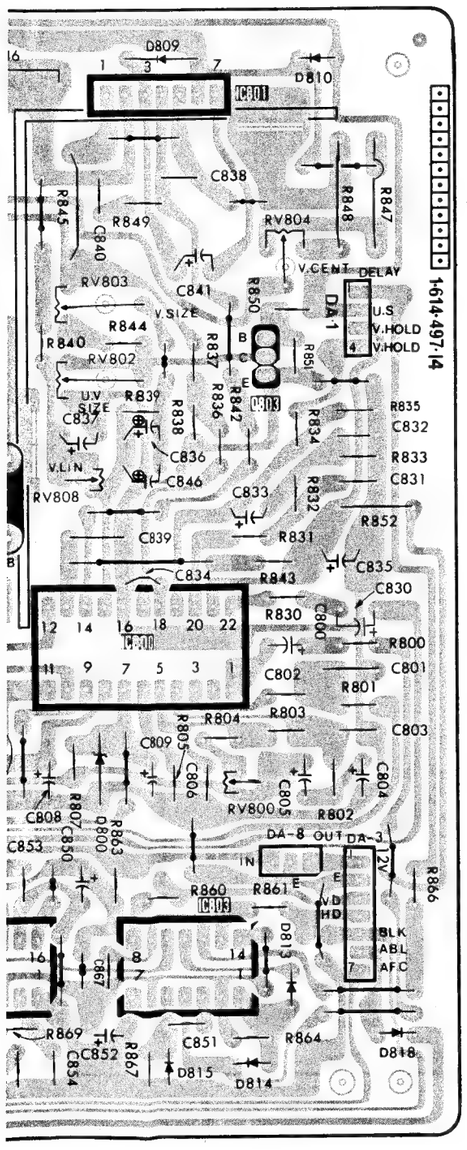
— FC Board —

— DB Board —

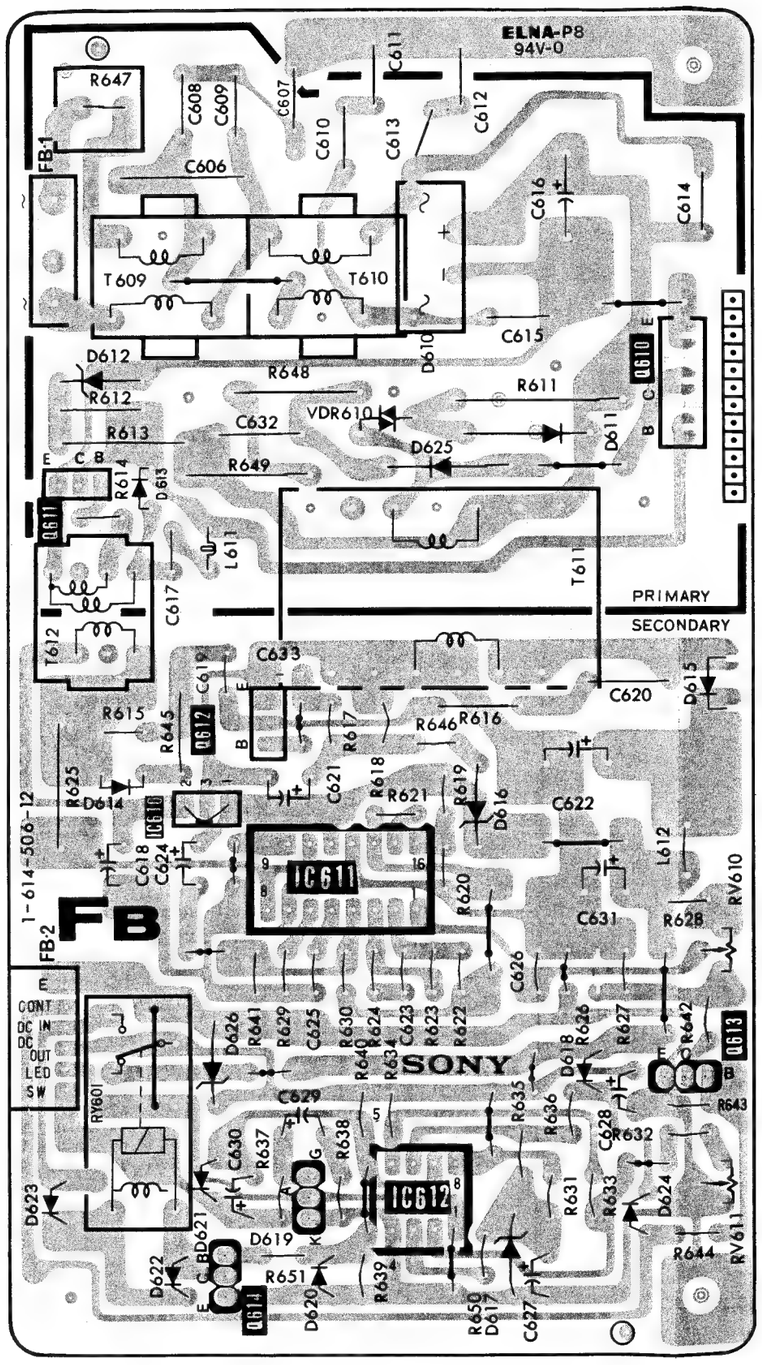
[FLYBACK TRANSFORMER]

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

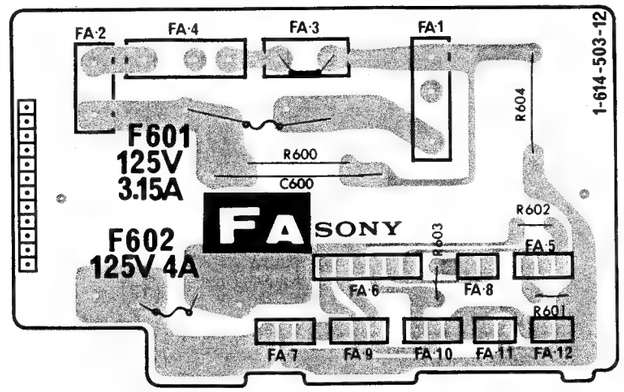
IC801 803 IC800 IC803	Q IC
809 810 800 815 814 813 818	D
RV803 RV802 RV808 RV804 RV800	ADJ



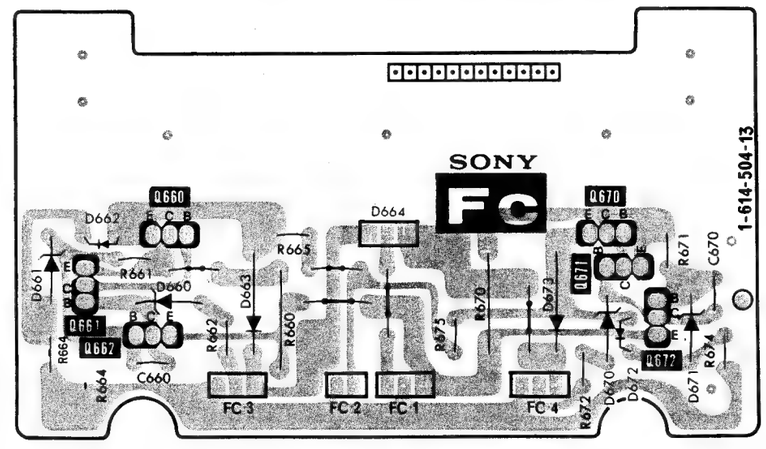
— FB Board —



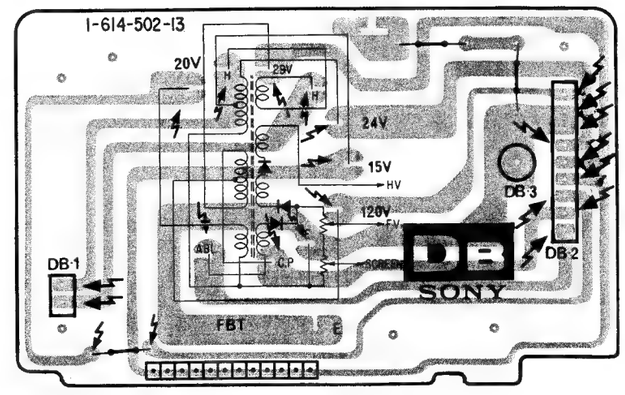
— FA Board —



— FC Board —



— DB Board —



SECTION 6
EXPLODED VIEWS

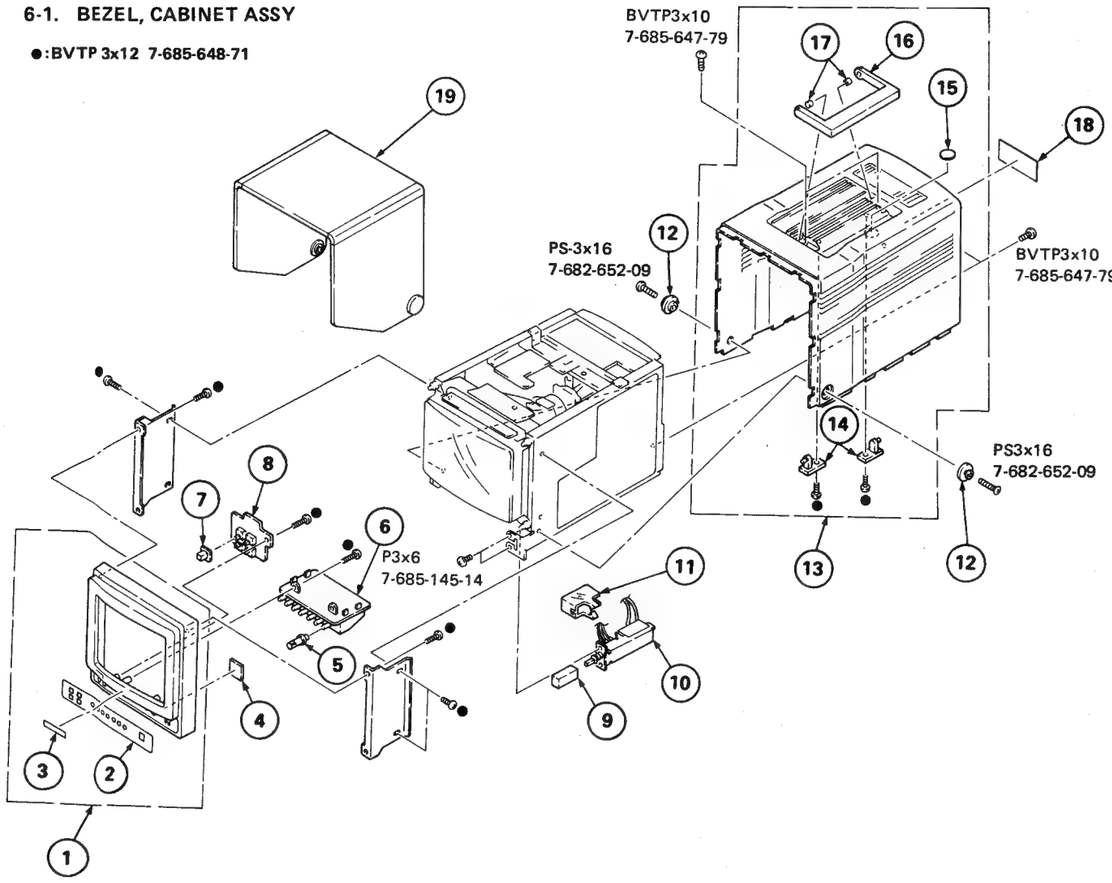
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. BEZEL, CABINET ASSY

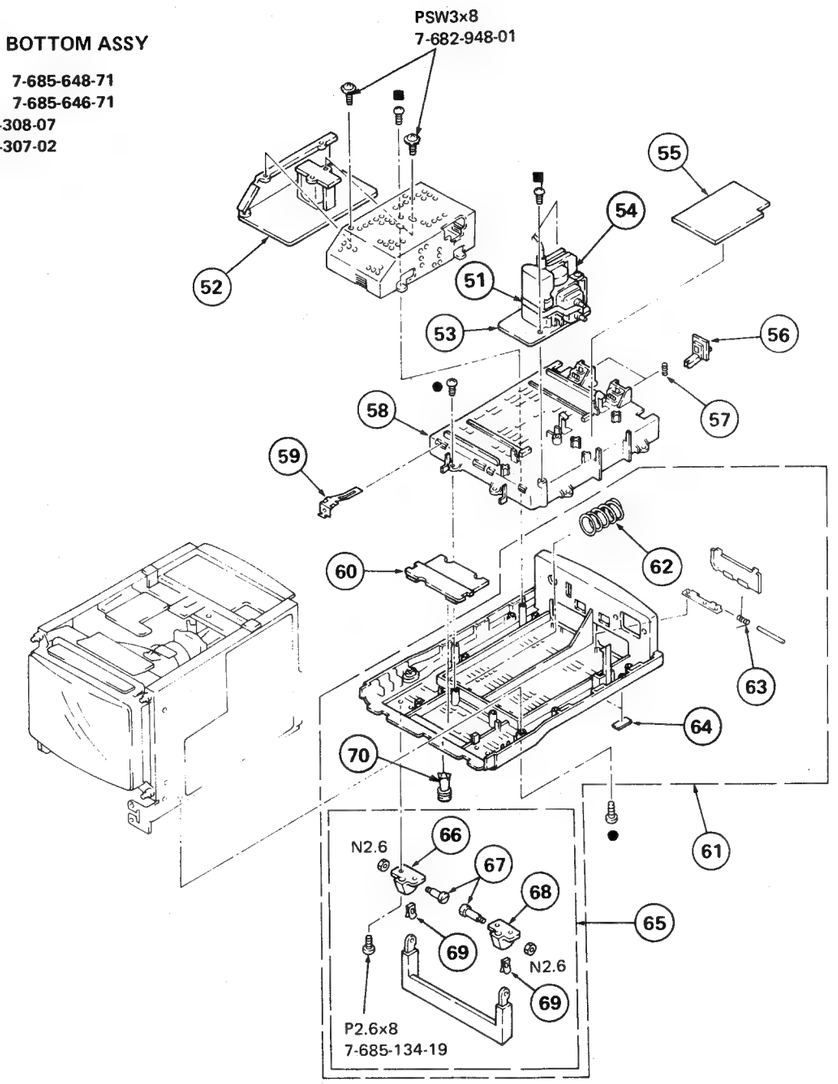
●:BVTP 3x12 7-685-648-71



No.	Part No.	Description	Remark
1	X-4374-805-7	BEZEL ASSY	2,3
2	4-374-830-31	LABEL, CONTROL	
3	3-566-707-00	EMBLEM, SONY	
4	*1-614-496-11	X BOARD	
5	4-374-820-11	KNOB, CONTROL	
6	*1-614-494-11	HA BOARD	
7	4-369-627-01	PUSH BUTTON	
8	*1-614-495-11	HB BOARD	
9	4-374-839-11	BUTTON (A)	
10	⚠1-570-200-11	SWITCH, PUSH (AC POWER) (1 KEY)	
11	*4-374-825-01	COVER, SWITCH	
12	4-374-855-01	HOOK, HOOD	
13	X-4374-807-1	CABINET ASSY	14-17
14	*4-361-411-01	SHAFT, HANDLE	
15	9-911-840-XX	SPACER, SIDE	
16	4-361-428-21	HANDLE	
17	*4-361-410-00	SPACER, HANDLE	
18	4-374-890-01	LABEL, MODEL NUMBER (LARGE)	
19	4-374-831-01	HOOD	

6-2. CABINET BOTTOM ASSY

● : BVTP 3x12 7-685-648-71
■ : BVTP 3x8 7-685-646-71
LW3 7-623-308-07
N2.6 7-622-307-02



No.	Part No.	Description	Remark
51	4-374-856-01	TAPE, COPPER FOIL	
52	*A-1245-256-A	FB BOARD, COMPLETE	
53	*1-614-502-11	DB BOARD	
54	⚠1-439-358-11	TRANSFORMER ASSY, FLYBACK	
55	*1-614-503-11	FA BOARD	
56	3-686-028-04	BUTTON, SLIDE	
57	4-876-347-01	SPRING, COMPRESSION	
58	*4-374-835-01	HOLDER, BATTERY	
59	3-669-526-00	TERMINAL	
60	*1-614-504-11	FC BOARD	
61	X-4374-806-1	CABINET ASSY, BOTTOM	62-69
62	3-669-594-00	SPRING, COMPRESSION	
63	3-669-592-00	SPRING (A), TORSION	
64	9-911-852-XX	CUSHION	
65	X-4374-802-1	LEG ASSY	66-69
66	4-002-791-00	BRACKET (RIGHT), LEG	
67	4-002-789-00	SCREW	
68	4-002-790-00	BRACKET (LEFT), LEG	
69	4-002-732-02	SPRING	
70	3-531-576-21	RIVET, NYLON	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

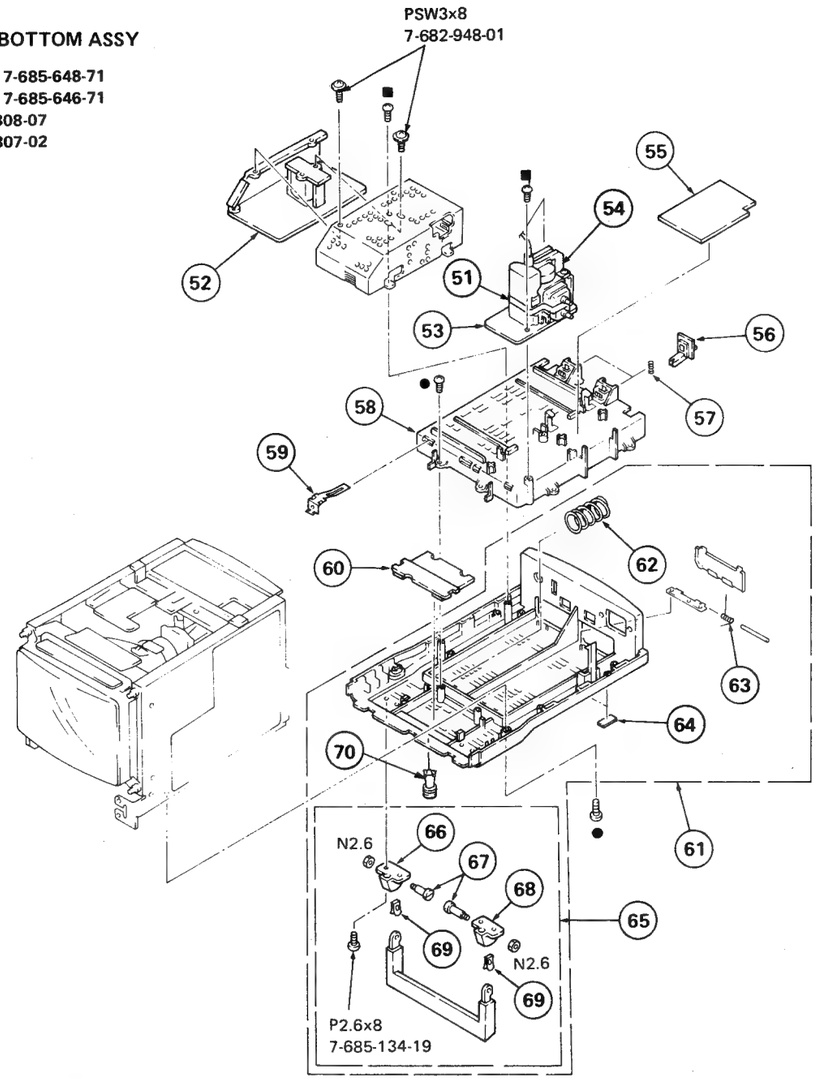
6-3. CHA

■ : BVTP

No.	Par
101	4-3
102	⚠.8-7
103	⚠.1-4
104	4-3
105	*4-3
106	*A-1
107	*4-3
108	⚠.1-4
109	*4-3
110	1-5
111	⚠.1-5
112	*3-7
113	*A-1
114	*4-3
115	⚠.1-5

6-2. CABINET BOTTOM ASSY

● : BVTP 3x12 7-685-648-71
■ : BVTP 3x8 7-685-646-71
LW3 7-623-308-07
N2.6 7-622-307-02



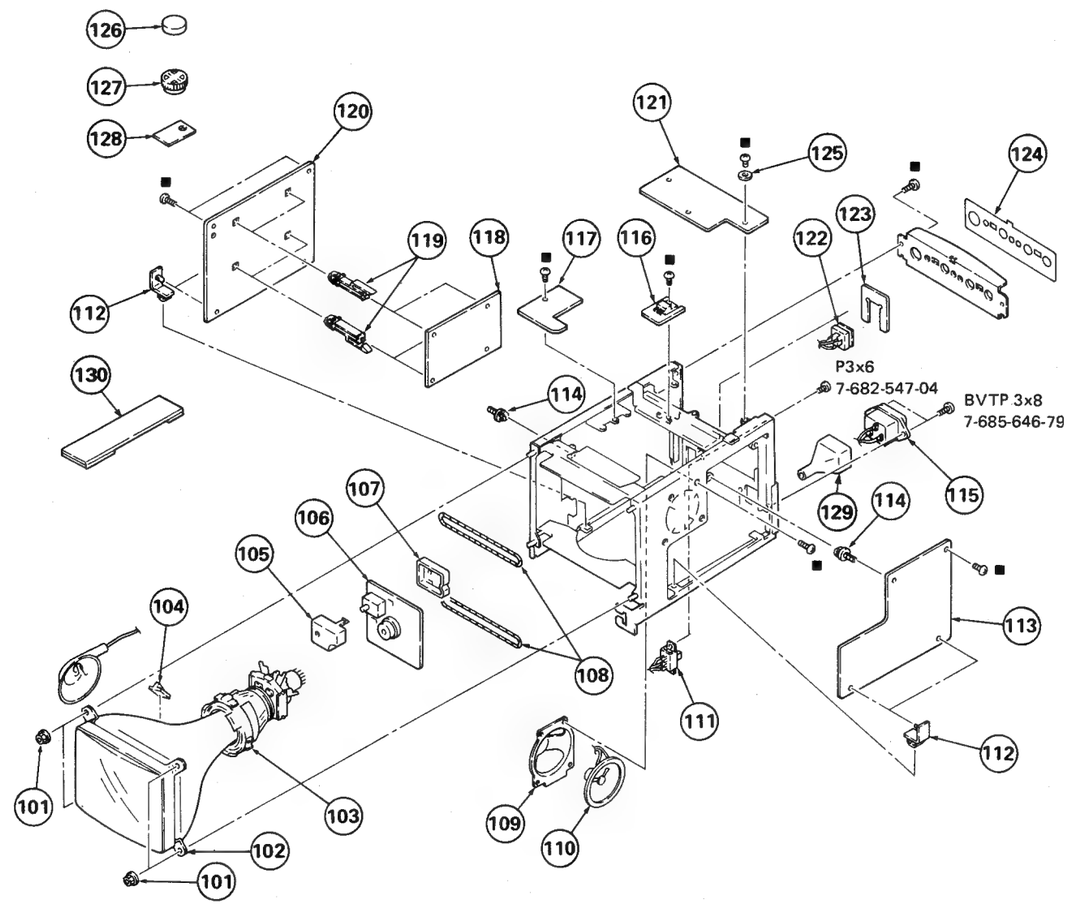
No.	Part No.	Description	Remark
51	4-374-856-01	TAPE, COPPER FOIL	
52	*A-1245-256-A	FB BOARD, COMPLETE	
53	*1-614-502-11	DB BOARD	
54	⚠1-439-358-11	TRANSFORMER ASSY, FLYBACK	
55	*1-614-503-11	FA BOARD	
56	3-686-028-04	BUTTON, SLIDE	
57	4-876-347-01	SPRING, COMPRESSION	
58	*4-374-835-01	HOLDER, BATTERY	
59	3-669-526-00	TERMINAL	
60	*1-614-504-11	FC BOARD	
61	X-4374-806-1	CABINET ASSY, BOTTOM	62-69
62	3-669-594-00	SPRING, COMPRESSION	
63	3-669-592-00	SPRING (A), TORSION	
64	9-911-852-XX	CUSHION	
65	X-4374-802-1	LEG ASSY	66-69
66	4-002-791-00	BRACKET (RIGHT), LEG	
67	4-002-789-00	SCREW	
68	4-002-790-00	BRACKET (LEFT), LEG	
69	4-002-732-02	SPRING	
70	3-531-576-21	RIVET, NYLON	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-3. CHASSIS ASSY

■ : BVTP 3x8 7-685-646-71



No.	Part No.	Description	Remark
101	4-304-511-00	NUT, FLANGE	
102	⚠8-737-651-05	CRT (M20JMP10X)	
103	⚠1-451-265-11	DEFLECTION YOKE (SY-167)	
104	4-309-369-00	SPACER, DEFLECTION YOKE	
105	*4-374-822-01	COVER (A), CONTROL	
106	*A-1330-584-A	C BOARD, COMPLETE	
107	*4-374-806-01	COVER (B), CONTROL	
108	⚠1-426-043-12	COIL, DEGAUSSING	
109	*4-344-240-00	BRACKET, SPEAKER	
110	1-502-509-00	SPEAKER	
111	⚠1-516-046-11	SWITCH, SLIDE	
112	*3-701-832-00	HINGE, CIRCUIT BOARD	
113	*A-1345-512-A	DA BOARD, COMPLETE	
114	*4-303-473-00	SUPPORT, PC	
115	⚠1-509-547-11	3P INLET	
116	*1-615-160-11	DD BOARD	
117	*1-614-498-11	DC BOARD	
118	*A-1135-324-A	BB BOARD, COMPLETE	
119	*3-657-516-00	SUPPORT, PC BOARD	
120	*A-1135-331-A	BA BOARD, COMPLETE	
121	*A-1270-154-A	Q BOARD, COMPLETE	
122	1-507-465-00	JACK, POWER OUTSIDE	
123	*4-374-801-01	STOPPER, JACK, DC	
124	4-374-829-01	LABEL, PANEL	
125	4-308-030-00	WASHER	
126	1-452-032-00	MAGNET, DISK; 10MM ø	
127	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ø	
128	1-452-126-11	MAGNET	
129	*4-601-466-11	COVER, 3P INLET	
130	X-4309-608-A	PERMALLOY ASSY, CONVERGENCE	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 7
ELECTRICAL PARTS LIST

BA

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

- **The components identified by ☒ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.**

Ref.No.	Part No.	Description			Remark
	*A-1135-331-A	BA BOARD, COMPLETE **********			
		CONNECTOR			
BA1	*1-564-441-11	PLUG, CONNECTOR (2.5MM) 5P			
BA2	*1-564-440-11	PLUG, CONNECTOR (2.5MM) 4P			
BA3	*1-564-440-11	PLUG, CONNECTOR (2.5MM) 4P			
BA4	*1-564-441-11	PLUG, CONNECTOR (2.5MM) 5P			
BA6	*1-564-442-11	PLUG, CONNECTOR (2.5MM) 6P			
BA7	*1-564-442-11	PLUG, CONNECTOR (2.5MM) 6P			
BA8	*1-564-440-11	PLUG, CONNECTOR (2.5MM) 4P			
BA9	*1-564-443-00	PLUG, CONNECTOR (2.5MM) 7P			
BA10	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P			
		CAPACITOR			
C251	1-101-888-00	CERAMIC	68PF	5%	50V
C253	1-123-333-00	ELECT	100MF	20%	25V
C254	1-101-004-00	CERAMIC	0.01MF		50V
C259	1-123-318-00	ELECT	33MF	20%	16V
C260	1-101-884-00	CERAMIC	56PF	5%	50V
C261	1-123-380-00	ELECT	1MF	20%	50V
C262	1-102-973-00	CERAMIC	100PF	5%	50V
C263	1-123-819-00	ELECT	33MF	20%	25V
C264	1-101-006-21	CERAMIC	0.047MF		50V
C265	1-101-004-00	CERAMIC	0.01MF		50V
C266	1-101-004-00	CERAMIC	0.01MF		50V
C267	1-101-004-00	CERAMIC	0.01MF		50V
C268	1-101-004-00	CERAMIC	0.01MF		50V
C269	1-123-318-00	ELECT	33MF	20%	16V
C281	1-102-946-00	CERAMIC	9PF	0.5PF	50V
C290	1-102-946-00	CERAMIC	9PF	0.5PF	50V
C291	1-102-946-00	CERAMIC	9PF	0.5PF	50V
C294	1-161-313-00	CERAMIC	150PF	10%	50V
C295	1-102-937-00	CERAMIC	4PF	0.5PF	50V
C296	1-123-332-00	ELECT	47MF	20%	25V
C297	1-101-006-21	CERAMIC	0.047MF		50V
C298	1-123-356-00	ELECT	10MF	20%	16V
C299	1-102-848-00	CERAMIC	180PF	5%	50V
C300	1-101-006-21	CERAMIC	0.047MF		50V
C301	1-101-004-00	CERAMIC	0.01MF		50V
C302	1-101-004-00	CERAMIC	0.01MF		50V
C303	1-106-212-00	MYLAR	0.047MF	10%	100V
C304	1-102-965-00	CERAMIC	39PF	5%	50V
C305	1-102-937-00	CERAMIC	4PF	0.5PF	50V
C306	1-106-212-00	MYLAR	0.047MF	10%	100V
C307	1-131-368-00	TANTALUM	3.3MF	10%	16V
C308	1-123-356-00	ELECT	10MF	20%	16V
C309	1-102-129-00	CERAMIC	0.01MF	10%	50V
C310	1-102-129-00	CERAMIC	0.01MF	10%	50V
C311	1-123-380-00	ELECT	1MF	20%	50V
C312	1-101-006-21	CERAMIC	0.047MF		50V
C313	1-123-333-00	ELECT	100MF	20%	25V
C323	1-102-129-00	CERAMIC	0.01MF	10%	50V
C325	1-102-129-00	CERAMIC	0.01MF	10%	50V
C326	1-102-963-00	CERAMIC	47PF	5%	50V
C327	1-102-953-00	CERAMIC	7PF	5%	50V
C328	1-102-129-00	CERAMIC	0.01MF	10%	50V
C329	1-102-129-00	CERAMIC	0.01MF	10%	50V
C330	1-102-129-00	CERAMIC	0.01MF	10%	50V
C331	1-101-880-00	CERAMIC	47PF	5%	50V
C332	1-101-880-00	CERAMIC	47PF	5%	50V
C334	1-102-963-00	CERAMIC	33PF	5%	50V
C335	1-131-341-00	TANTALUM	0.1MF	20%	35V
C336	1-123-380-00	ELECT	1MF	20%	50V
C340	1-101-006-21	CERAMIC	0.047MF		50V
C343	1-123-356-00	ELECT	10MF	20%	25V
C344	1-123-379-00	ELECT	0.47MF	20%	50V
C345	1-102-129-00	CERAMIC	0.01MF	10%	50V
C346	1-102-961-00	CERAMIC	27PF	5%	50V
C347	1-102-129-00	CERAMIC	0.01MF	10%	50V
C348	1-106-212-00	MYLAR	0.047MF	10%	100V
C349	1-106-212-00	MYLAR	0.047MF	10%	100V
C350	1-123-381-00	ELECT	2.2MF	20%	50V
C351	1-123-369-00	ELECT	4.7MF	20%	50V
C352	1-123-380-00	ELECT	1MF	20%	50V
C365	1-102-129-00	CERAMIC	0.01MF	10%	50V
C366	1-123-382-00	ELECT	3.3MF	20%	50V
C367	1-102-129-00	CERAMIC	0.01MF	10%	50V
C368	1-102-129-00	CERAMIC	0.01MF	10%	50V
C369	1-123-333-00	ELECT	100MF	20%	25V
C381	1-123-333-00	ELECT	100MF	20%	25V
C382	1-101-004-00	CERAMIC	0.01MF		50V
C386	1-102-822-00	CERAMIC	390PF	5%	50V
C387	1-102-820-00	CERAMIC	330PF	5%	50V
C388	1-102-820-00	CERAMIC	330PF	5%	50V
		DIODE			
D253	8-719-911-19	DIODE 1SS119			
D255	8-719-911-19	DIODE 1SS119			
D257	8-719-911-19	DIODE 1SS119			
D258	8-719-911-19	DIODE 1SS119			
		DELAY LINE			
DL251	1-415-330-00	DELAY LINE, Y			
		IC			
IC251	8-752-006-10	IC CX20061			
IC253	8-759-113-65	IC UPC1365C			
		COIL			
L251	1-408-412-00	MICRO INDUCTOR 18UH			
L254	1-408-420-00	MICRO INDUCTOR 82UH			
L256	1-408-418-00	MICRO INDUCTOR 56UH			
L257	1-408-416-00	MICRO INDUCTOR 39UH			
L258	1-408-406-00	MICRO INDUCTOR 5.6UH			

BA

Ref.No.	Part No.	Description	Remark
L259	1-408-415-00	MICRO INDUCTOR 33UH	
L260	1-408-415-00	MICRO INDUCTOR 33UH	
L261	1-408-415-00	MICRO INDUCTOR 33UH	
L262	1-408-412-00	MICRO INDUCTOR 18UH	
		TRANSISTOR	
Q251	8-729-603-30	TRANSISTOR 2SC403SP-3	
Q252	8-729-245-83	TRANSISTOR 2SC2458	
Q253	8-729-245-83	TRANSISTOR 2SC2458	
Q256	8-729-245-83	TRANSISTOR 2SC2458	
Q257	8-729-603-30	TRANSISTOR 2SC403SP-3	
Q258	8-729-204-83	TRANSISTOR 2SA1048GR	
Q259	8-729-245-83	TRANSISTOR 2SC2458	
Q270	8-729-603-30	TRANSISTOR 2SC403SP-3	
Q271	8-729-178-55	TRANSISTOR 2SC2785-E	
Q272	8-729-245-83	TRANSISTOR 2SC2458	
Q273	8-729-603-30	TRANSISTOR 2SC403SP-3	
Q274	8-729-245-83	TRANSISTOR 2SC2458	
Q278	8-729-115-30	TRANSISTOR 2SK105A-30	
Q279	8-729-245-83	TRANSISTOR 2SC2458	
		RESISTOR	
R252	1-247-851-00	CARBON 6.8K 5% 1/6W	
R253	1-247-825-00	CARBON 560 5% 1/6W	
R254	1-249-419-11	CARBON 1.5K 5% 1/6W	
R257	1-247-831-00	CARBON 1K 5% 1/6W	
R259	1-249-419-11	CARBON 1.5K 5% 1/6W	
R260	1-249-419-11	CARBON 1.5K 5% 1/6W	
R261	1-247-819-00	CARBON 330 5% 1/6W	
R262	1-247-831-00	CARBON 1K 5% 1/6W	
R270	1-247-831-00	CARBON 1K 5% 1/6W	
R271	1-247-807-00	CARBON 100 5% 1/6W	
R272	1-249-419-11	CARBON 1.5K 5% 1/6W	
R273	1-247-807-00	CARBON 100 5% 1/6W	
R274	1-247-831-00	CARBON 1K 5% 1/6W	
R275	1-247-831-00	CARBON 1K 5% 1/6W	
R276	1-247-819-00	CARBON 330 5% 1/6W	
R277	1-247-873-00	CARBON 56K 5% 1/6W	
R278	1-247-877-00	CARBON 82K 5% 1/6W	
R279	1-247-807-00	CARBON 100 5% 1/6W	
R280	1-247-861-00	CARBON 18K 5% 1/6W	
R281	1-249-429-11	CARBON 10K 5% 1/6W	
R282	1-247-807-00	CARBON 100 5% 1/6W	
R283	1-247-867-00	CARBON 33K 5% 1/6W	
R320	1-247-843-00	CARBON 3.3K 5% 1/6W	
R321	1-247-811-00	CARBON 150 5% 1/6W	
R322	1-247-837-00	CARBON 1.8K 5% 1/6W	
R323	1-247-827-00	CARBON 680 5% 1/6W	
R324	1-247-825-00	CARBON 560 5% 1/6W	
R326	1-247-823-00	CARBON 470 5% 1/6W	
R327	1-249-421-11	CARBON 2.2K 5% 1/6W	
R328	1-249-429-11	CARBON 10K 5% 1/6W	
R329	1-247-847-00	CARBON 4.7K 5% 1/6W	

Ref.No.	Part No.	Description	Remark
R330	1-247-837-00	CARBON 1.8K 5% 1/6W	
R332	1-247-823-00	CARBON 470 5% 1/6W	
R333	1-247-791-00	CARBON 22 5% 1/6W	
R334	1-247-843-00	CARBON 3.3K 5% 1/6W	
R335	1-249-421-11	CARBON 2.2K 5% 1/6W	
R336	1-247-823-00	CARBON 470 5% 1/6W	
R337	1-247-827-00	CARBON 680 5% 1/6W	
R338	1-247-853-00	CARBON 8.2K 5% 1/6W	
R339	1-249-429-11	CARBON 10K 5% 1/6W	
R340	1-247-831-00	CARBON 1K 5% 1/6W	
R341	1-247-807-00	CARBON 100 5% 1/6W	
R342	1-247-807-00	CARBON 100 5% 1/6W	
R343	1-247-883-00	CARBON 150K 5% 1/6W	
R344	1-249-429-11	CARBON 10K 5% 1/6W	
R345	1-247-843-00	CARBON 3.3K 5% 1/6W	
R346	1-247-791-00	CARBON 22 5% 1/6W	
R366	1-247-881-00	CARBON 120K 5% 1/6W	
R367	1-247-849-00	CARBON 5.6K 5% 1/6W	
R369	1-247-881-00	CARBON 120K 5% 1/6W	
R370	1-247-875-00	CARBON 68K 5% 1/6W	
R371	1-247-867-00	CARBON 33K 5% 1/6W	
R372	1-249-434-11	CARBON 27K 5% 1/6W	
R373	1-247-873-00	CARBON 56K 5% 1/6W	
R374	1-247-823-00	CARBON 470 5% 1/6W	
R375	1-247-827-00	CARBON 680 5% 1/6W	
R376	1-247-831-00	CARBON 1K 5% 1/6W	
R377	1-249-419-11	CARBON 1.5K 5% 1/6W	
R378	1-247-887-00	CARBON 220K 5% 1/6W	
R379	1-247-827-00	CARBON 680 5% 1/6W	
R381	1-247-863-00	CARBON 22K 5% 1/6W	
R382	1-247-867-00	CARBON 33K 5% 1/6W	
R383	1-247-831-00	CARBON 1K 5% 1/6W	
R395	1-247-857-00	CARBON 12K 5% 1/6W	
R396	1-247-863-00	CARBON 22K 5% 1/6W	
R397	1-247-823-00	CARBON 470 5% 1/6W	
R399	1-249-421-11	CARBON 2.2K 5% 1/6W	
R400	1-249-434-11	CARBON 27K 5% 1/6W	
R401	1-249-434-11	CARBON 27K 5% 1/6W	
R402	1-247-877-00	CARBON 82K 5% 1/6W	
R404	1-247-883-00	CARBON 150K 5% 1/6W	
R406	1-247-821-00	CARBON 390 5% 1/6W	
R408	1-247-821-00	CARBON 390 5% 1/6W	
R410	1-247-821-00	CARBON 390 5% 1/6W	
R411	1-249-437-11	CARBON 47K 5% 1/6W	
R437	1-247-845-00	CARBON 3.9K 5% 1/6W	
R438	1-247-823-00	CARBON 470 5% 1/6W	
R439	1-247-791-00	CARBON 22 5% 1/6W	
R440	1-247-721-11	CARBON 4.7K 5% 1/4W	
R441	1-247-831-00	CARBON 1K 5% 1/6W	
R442	1-247-845-00	CARBON 3.9K 5% 1/6W	
R443	1-247-823-00	CARBON 470 5% 1/6W	
R444	1-247-807-00	CARBON 100 5% 1/6W	
R445	1-247-721-11	CARBON 4.7K 5% 1/4W	

Ref.No.	Part No.	Description				Remark
R446	1-247-831-00	CARBON	1K	5%	1/6W	
R447	1-247-845-00	CARBON	3.9K	5%	1/6W	
R448	1-247-823-00	CARBON	470	5%	1/6W	
R449	1-247-799-00	CARBON	47	5%	1/6W	
R450	1-247-721-11	CARBON	4.7K	5%	1/4W	
R451	1-247-831-00	CARBON	1K	5%	1/6W	
R452	1-247-847-00	CARBON	4.7K	5%	1/6W	
R456	1-247-841-00	CARBON	2.7K	5%	1/6W	
R457	1-247-849-00	CARBON	5.6K	5%	1/6W	
R465	1-247-867-00	CARBON	33K	5%	1/6W	
		VARIABLE RESISTOR				
RV252	1-228-723-00	RES, ADJ, CERAMIC CARBON 4.7K				
RV253	1-228-719-00	RES, ADJ, CERAMIC CARBON 470				
RV254	1-228-722-00	RES, ADJ, CERAMIC CARBON 3.3K				
RV255	1-228-722-00	RES, ADJ, CERAMIC CARBON 3.3K				
RV256	1-228-725-00	RES, ADJ, CERAMIC CARBON 22K				
RV258	1-224-660-00	RES, ADJ, METAL FILM 1K				
RV259	1-224-493-00	RES, ADJ, METAL FILM 10K				
RV260	1-224-660-00	RES, ADJ, METAL FILM 1K				
RV261	1-224-493-00	RES, ADJ, METAL FILM 10K				
RV262	1-224-660-00	RES, ADJ, METAL FILM 1K				
RV263	1-224-493-00	RES, ADJ, METAL FILM 10K				
RV264	1-228-720-00	RES, ADJ, CERAMIC CARBON 1K				
		TRANSFORMER				
T256	1-425-794-00	BPT-2				
T257	1-405-372-00	COIL BAT				
		CRYSTAL				
X251	1-527-396-00	CRYSTAL, OSC				
**********						
	*A-1135-324-A	BB BOARD, COMPLETE				
		**********				
		CONNECTOR				
BB1	*1-564-443-11	PLUG, CONNECTOR (2.5MM) 7P				
BB2	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P				
BB4	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P				
		CAPACITOR				
C314	1-123-333-00	ELECT	100MF	20%	25V	
C315	1-123-333-00	ELECT	100MF	20%	25V	
C317	1-123-381-00	ELECT	2.2MF	20%	50V	
C318	1-102-119-00	CERAMIC	0.0015MF	10%	50V	
C319	1-102-971-00	CERAMIC	82PF	5%	50V	
C320	1-106-184-00	MYLAR	0.0033MF	10%	100V	
C321	1-101-361-00	CERAMIC	150PF	5%	50V	
C322	1-106-188-00	MYLAR	0.0047MF	10%	100V	
C353	1-123-356-00	ELECT	10MF	20%	25V	
C354	1-101-888-00	CERAMIC	68PF	5%	50V	

Ref.No.	Part No.	Description				Remark
C355	1-102-129-00	CERAMIC	0.01MF	10%	50V	
C356	1-123-332-00	ELECT	47MF	20%	16V	
C395	1-123-356-00	ELECT	10MF	20%	25V	
C396	1-108-599-00	MYLAR	0.068MF	5%	50V	
C397	1-102-973-00	CERAMIC	100PF	5%	50V	
C398	1-123-332-00	ELECT	47MF	20%	16V	
C399	1-101-888-00	CERAMIC	68PF	5%	50V	
C401	1-123-333-00	ELECT	100MF	20%	16V	
C402	1-101-888-00	CERAMIC	68PF	5%	50V	
C403	1-101-888-00	CERAMIC	68PF	5%	50V	
C404	1-102-965-00	CERAMIC	39PF	5%	50V	
		DELAY LINE				
DL253	1-415-356-11	DELAY LINE, 1H				
		IC				
IC254	8-759-240-11	IC TC4011BP				
IC255	8-759-345-38	IC HD14538BP				
		COIL				
L260	1-408-417-00	MICRO INDUCTOR 47UH				
L261	1-408-411-00	MICRO INDUCTOR 15UH				
L262	1-404-554-11	COIL				
L263	1-408-417-00	MICRO INDUCTOR 47UH				
		TRANSISTOR				
Q275	8-729-603-30	TRANSISTOR 2SC403SP-3				
Q276	8-729-245-83	TRANSISTOR 2SC2458				
Q277	8-729-204-83	TRANSISTOR 2SA1048GR				
Q278	8-729-245-83	TRANSISTOR 2SC2458				
Q282	8-729-245-83	TRANSISTOR 2SC2458				
Q283	8-729-204-83	TRANSISTOR 2SA1048GR				
Q284	8-729-204-83	TRANSISTOR 2SA1048GR				
Q285	8-729-245-83	TRANSISTOR 2SC2458				
Q286	8-729-245-83	TRANSISTOR 2SC2458				
		RESISTOR				
R347	1-247-863-00	CARBON	22K	5%	1/6W	
R348	1-247-841-00	CARBON	2.7K	5%	1/6W	
R349	1-247-831-00	CARBON	1K	5%	1/6W	
R350	1-247-831-00	CARBON	1K	5%	1/6W	
R352	1-247-817-00	CARBON	270	5%	1/6W	
R353	1-247-831-00	CARBON	1K	5%	1/6W	
R355	1-247-863-00	CARBON	22K	5%	1/6W	
R356	1-247-893-00	CARBON	390K	5%	1/6W	
R357	1-247-823-00	CARBON	47Ω	5%	1/6W	
R358	1-249-434-11	CARBON	27K	5%	1/6W	
R359	1-247-847-00	CARBON	4.7K	5%	1/6W	
R360	1-247-841-00	CARBON	2.7K	5%	1/6W	
R361	1-247-863-00	CARBON	22K	5%	1/6W	
R362	1-247-859-00	CARBON	15K	5%	1/6W	
R363	1-247-841-00	CARBON	2.7K	5%	1/6W	

BB FA FC

Ref.No.	Part No.	Description				Remark
R364	1-249-437-11	CARBON	47K	5%	1/6W	
R365	1-247-717-11	CARBON	2.2K	5%	1/4W	
R384	1-247-867-00	CARBON	33K	5%	1/6W	
R388	1-247-841-00	CARBON	2.7K	5%	1/6W	
R389	1-249-421-11	CARBON	2.2K	5%	1/6W	
R459	1-247-831-00	CARBON	1K	5%	1/6W	
R461	1-247-831-00	CARBON	1K	5%	1/6W	
R462	1-247-879-00	CARBON	100K	5%	1/6W	
R463	1-247-700-11	CARBON	100	5%	1/4W	
R470	1-247-125-00	CARBON	560	5%	1/4W	
R471	1-247-857-00	CARBON	12K	5%	1/6W	
R472	1-247-827-00	CARBON	680	5%	1/6W	
R473	1-247-827-00	CARBON	680	5%	1/6W	
R474	1-247-837-00	CARBON	1.8K	5%	1/6W	
R475	1-247-837-00	CARBON	1.8K	5%	1/6W	
R476	1-247-807-00	CARBON	100	5%	1/6W	
R477	1-247-807-00	CARBON	100	5%	1/6W	
R478	1-247-831-00	CARBON	1K	5%	1/6W	
R479	1-247-831-00	CARBON	1K	5%	1/6W	
R480	1-247-827-00	CARBON	680	5%	1/6W	
R481	1-247-841-00	CARBON	5.6K	5%	1/6W	
R482	1-247-867-00	CARBON	33K	5%	1/6W	
R483	1-247-127-00	CARBON	680	5%	1/4W	
R484	1-247-127-00	CARBON	680	5%	1/4W	
R485	1-249-460-11	CARBON	15K	5%	1/4W	
R486	1-247-815-00	CARBON	220	5%	1/6W	

VARIABLE RESISTOR

RV265	1-226-773-00	RES, ADJ, METAL GLAZE 22K				
RV266	1-226-775-00	RES, ADJ, METAL GLAZE 100K				
RV267	1-228-719-00	RES, ADJ, CERAMIC CARBON 470				

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*1-614-503-11 FA BOARD
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CAPACITOR

C600	1-108-745-00	MYLAR	0.22MF	20%	125V	
	*4-316-137-00	COVER, CAPACITOR; C600				

FUSE

F601	⚠1-532-557-11	FUSE, GLASS TUBE 3.15A				
	1-533-087-00	HOLDER, FUSE; F601				
F602	⚠1-532-579-11	FUSE, GLASS TUBE 4A				
	1-533-087-00	HOLDER, FUSE; F602				

CONNECTOR

FA1	*1-508-765-00	3P PLUG (M)				
FA2	*1-508-786-00	2P PLUG (M)				
FA4	*1-508-765-00	3P PLUG (M)				
FA5	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P				
FA6	*1-564-442-11	PLUG, CONNECTOR (2.5MM) 6P				
FA7	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P				
FA8	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P				
FA9	*1-564-354-21	PLUG, CONNECTOR (2.5MM) 3P				
FA10	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P				
FA11	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P				
FA12	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P				

RESISTOR

R600	1-202-724-00	SOLID	2.7M	10%	1/2W	
R601	1-247-824-00	CARBON	510	5%	1/6W	
R602	1-247-831-00	CARBON	1K	5%	1/6W	
R603	1-247-837-00	CARBON	1.8K	5%	1/6W	
R604	1-202-727-00	SOLID	4.7M	10%	1/2W	

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*1-614-504-11 FC BOARD
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	3-618-225-00	NUT, PLATE				
	*4-026-251-00	SPACER, INSULATING				
	4-313-734-00	BUSHING TR, Y				

CAPACITOR

C660	1-161-047-00	CERAMIC	0.0047MF	10%	25V	
C670	1-161-047-00	CERAMIC	0.0047MF	10%	25V	

DIODE

D660	8-719-102-84	DIODE RD8.2E-N2				
D661	8-719-102-90	DIODE RD10E-N2				
D662	8-719-911-19	DIODE 1SS119				
D663	8-719-911-55	DIODE U05G				
D664	8-719-920-40	DIODE ESAC82-004				
D670	8-719-102-84	DIODE RD8.2E-N2				
D671	8-719-102-90	DIODE RD10E-N2				
D672	8-719-911-19	DIODE 1SS119				
D673	8-719-911-55	DIODE U05G				

CONNECTOR

FC1	*1-564-354-21	PLUG, CONNECTOR (2.5MM) 3P				
FC2	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P				
FC3	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P				
FC4	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P				

TRANSISTOR

Q660	8-729-313-42	TRANSISTOR 2SD1134				
Q661	8-729-204-83	TRANSISTOR 2SA1048GR				
Q662	8-729-204-83	TRANSISTOR 2SA1048GR				
Q670	8-729-313-42	TRANSISTOR 2SD1134				
Q671	8-729-204-83	TRANSISTOR 2SA1048GR				
Q672	8-729-204-83	TRANSISTOR 2SA1048GR				

RESISTOR

R660	1-212-361-00	METAL OXIDE	1.2	5%	1W	F

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description				Remark
R661	1-247-831-00	CARBON	1K	5%	1/6W	
R662	1-249-429-11	CARBON	10K	5%	1/6W	
R664	1-249-421-11	CARBON	2.2K	5%	1/6W	
R665	1-247-819-00	CARBON	330	5%	1/6W	
R670	1-212-361-00	METAL OXIDE	1.2	5%	1W	F
R671	1-247-831-00	CARBON	1K	5%	1/6W	
R672	1-249-429-11	CARBON	10K	5%	1/6W	
R674	1-249-421-11	CARBON	2.2K	5%	1/6W	
R675	1-247-819-00	CARBON	330	5%	1/6W	
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	*A-1245-256-A	FB BOARD, COMPLETE				
		**********				
	*2-430-232-00	INSULATOR (SR12E), TRANSISTOR				
	*4-374-808-01	SPACER, INSULATING				
	*4-374-846-01	COVER, CAPACITOR, CAP TYPE				
	*4-374-846-11	COVER, CAPACITOR, CAP TYPE				
		CAPACITOR				
C606	⚠1-136-345-51	FILM	0.1MF	20%	125V	
C607	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C608	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C609	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C610	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C611	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C612	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C613	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C614	1-161-742-00	CERAMIC	0.0022MF	20%	400V	
C615	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C616	1-125-392-11	ELECT(BLOCK)	220MF	20%	200V	
C617	1-136-173-00	FILM	0.47MF	5%	50V	
C618	1-123-356-00	ELECT	10MF	20%	25V	
C619	1-108-587-00	MYLAR	0.022MF	10%	50V	
C620	1-161-328-00	CERAMIC	0.0047MF	30%	50V	
C621	1-123-356-00	ELECT	10MF	20%	16V	
C622	1-124-440-11	ELECT	3300MF	20%	25V	
C623	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C624	1-123-356-00	ELECT	10MF	20%	25V	
C625	1-106-180-00	MYLAR	0.0022MF	10%	50V	
C626	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C627	1-123-356-00	ELECT	10MF	20%	16V	
C628	1-123-356-00	ELECT	10MF	20%	25V	
C629	1-123-381-00	ELECT	2.2MF	20%	50V	
C630	1-123-330-00	ELECT	22MF	20%	16V	
C631	1-123-335-00	ELECT	330MF	20%	25V	
C632	1-130-806-00	FILM	0.1MF	10%	400V	
C633	1-102-074-00	CERAMIC	0.001MF	10%	50V	
		DIODE				
D610	8-719-300-63	DIODE LB-156				
D611	8-719-924-06	DIODE ERC24-06S				
D612	8-719-102-74	DIODE RD6.2E-N2				
D613	8-719-901-93	DIODE V19E				

Ref.No.	Part No.	Description				Remark
D614	8-719-911-19	DIODE 1SS119				
D615	8-719-908-20	DIODE ERC88-009				
D616	8-719-102-90	DIODE RD10E-N2				
D617	8-719-102-74	DIODE RD6.2E-N2				
D618	8-719-911-19	DIODE 1SS119				
D619	8-729-101-31	TRANSISTOR N13T1				
D620	8-719-911-19	DIODE 1SS119				
D621	8-719-911-19	DIODE 1SS119				
D622	8-719-911-19	DIODE 1SS119				
D623	8-719-911-19	DIODE 1SS119				
D624	8-719-911-19	DIODE 1SS119				
D625	8-719-924-06	DIODE ERC24-06S				
D626	8-719-103-20	DIODE RD20EN1				
		CONNECTOR				
FB1	*1-508-765-00	3P PLUG (M)				
FB2	*1-564-454-11	PLUG, CONNECTOR (2.5MM) 6P				
		IC				
IC611	8-759-906-62	IC MB3759-SNY				
IC612	8-759-729-03	IC NJM2903D				
		COIL				
L611	1-408-412-00	MICRO INDUCTOR 18UH				
L612	1-407-365-00	COIL, CHOKE				
		TRANSISTOR				
Q610	8-729-802-07	TRANSISTOR 2SD1403-CA				
Q611	8-729-177-43	TRANSISTOR 2SD774				
Q612	8-729-177-43	TRANSISTOR 2SD774				
Q613	8-729-245-83	TRANSISTOR 2SC2458				
Q614	8-729-245-83	TRANSISTOR 2SC2458				
		RESISTOR				
R611	1-206-670-00	METAL OXIDE	1.8K	5%	2W	F
R612	1-247-725-11	CARBON	10K	5%	1/4W	
R613	1-244-929-00	CARBON	220K	5%	1/2W	
R614	1-247-807-00	CARBON	100	5%	1/6W	
R615	1-247-827-00	CARBON	680	5%	1/6W	
R616	1-247-034-00	CARBON	220	5%	1/8W	F
R617	1-247-847-00	CARBON	4.7K	5%	1/6W	
R618	1-247-847-00	CARBON	4.7K	5%	1/6W	
R619	1-249-434-11	CARBON	27K	5%	1/6W	
R620	1-247-853-00	CARBON	8.2K	5%	1/6W	
R621	1-247-847-00	CARBON	4.7K	5%	1/6W	
R622	1-249-421-11	CARBON	2.2K	5%	1/6W	
R623	1-247-879-00	CARBON	100K	5%	1/6W	
R624	1-249-421-11	CARBON	2.2K	5%	1/6W	
R625	1-213-131-00	METAL OXIDE	100	5%	1W	F
R627	1-215-443-00	METAL	8.2K	1%	1/6W	
R628	1-215-451-00	METAL	18K	1%	1/6W	
R629	1-215-447-00	METAL	12K	1%	1/6W	
R630	1-247-849-00	CARBON	5.6K	5%	1/6W	

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FB Q

Ref.No.	Part No.	Description				Remark
R631	1-247-849-00	CARBON	5.6K	5%	1/6W	
R632	1-215-429-00	METAL	2.2K	1%	1/6W	
R633	1-215-401-11	METAL	150	1%	1/6W	
R634	1-215-429-00	METAL	2.2K	1%	1/6W	
R635	1-249-429-11	CARBON	10K	5%	1/6W	
R636	1-249-429-11	CARBON	10K	5%	1/6W	
R637	1-247-879-00	CARBON	100K	5%	1/6W	
R638	1-247-847-00	CARBON	4.7K	5%	1/6W	
R639	1-247-843-00	CARBON	3.3K	5%	1/6W	
R640	1-249-429-11	CARBON	10K	5%	1/6W	
R641	1-249-421-11	CARBON	10K	5%	1/6W	
R642	1-247-867-00	CARBON	33K	5%	1/6W	
R643	1-247-847-00	CARBON	4.7K	5%	1/6W	
R644	1-247-847-00	CARBON	4.7K	5%	1/6W	
R645	1-247-034-00	CARBON	220	5%	1/8W	F
R646	1-247-825-00	CARBON	560	5%	1/6W	
R647	⚠1-205-616-11	CEMENTED	1	5%	5W	
R648	1-213-160-11	METAL OXIDE	27K	5%	1W	F
R649	1-213-160-11	METAL OXIDE	27K	5%	1W	F
R650	1-247-847-00	CARBON	4.7K	5%	1/6W	
R651	1-247-831-00	CARBON	1K	5%	1/6W	

VARIABLE RESISTOR

RV610	1-230-231-11	RES, ADJ, CERAMIC CARBON	2.2K
RV611	1-230-230-00	RES, ADJ, CERAMIC CARBON	1K

RELAY

RY610	1-515-559-11	RELAY, POWER

TRANSFORMER

T609	⚠1-421-400-11	COIL, LINE FILTER
T610	⚠1-421-400-11	COIL, LINE FILTER
T611	⚠1-448-108-12	TRANSFORMER, CONVERTER (SRT)
T612	⚠1-437-173-11	TRANSFORMER, DRIVE

VARISTOR

VDR610	1-807-180-11	VARISTOR SNR-14A300K

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*A-1270-154-A Q BOARD, COMPLETE
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CAPACITOR

C201	1-123-333-00	ELECT	100MF	20%	25V
C202	1-101-006-21	CERAMIC	0.047MF		50V
C203	1-123-356-00	ELECT	10MF	20%	25V
C204	1-123-318-00	ELECT	33MF	20%	16V
C205	1-123-318-00	ELECT	33MF	20%	16V
C206	1-123-333-00	ELECT	100MF	20%	25V
C208	1-123-356-00	ELECT	10MF	20%	25V
C209	1-123-318-00	ELECT	33MF	20%	16V
C210	1-123-356-00	ELECT	10MF	20%	25V
C211	1-101-006-21	CERAMIC	0.047MF		50V
C212	1-101-006-21	CERAMIC	0.047MF		50V
C213	1-123-380-00	ELECT	1MF	20%	50V
C214	1-123-380-00	ELECT	1MF	20%	50V
C215	1-123-334-00	ELECT	220MF	20%	25V
C217	1-101-006-21	CERAMIC	0.047MF		50V
C218	1-123-382-00	ELECT	3.3MF	20%	50V
C219	1-123-356-00	ELECT	10MF	20%	25V
C220	1-123-356-00	ELECT	10MF	20%	25V
C221	1-101-006-21	CERAMIC	0.047MF		50V
C222	1-123-321-00	ELECT	220MF	20%	16V
C223	1-123-321-00	ELECT	220MF	20%	16V
C224	1-123-333-00	ELECT	100MF	20%	16V
C225	1-123-318-00	ELECT	33MF	20%	16V
C226	1-123-318-00	ELECT	33MF	20%	16V
C228	1-102-129-00	CERAMIC	0.01MF	10%	50V
C229	1-123-380-00	ELECT	1MF	20%	50V
C230	1-102-824-00	CERAMIC	470PF	5%	50V
C231	1-101-004-00	CERAMIC	0.01MF		50V
C232	1-123-330-00	ELECT	22MF	20%	25V

DIODE

D201	8-719-100-65	DIODE RD12E-B2
D202	8-719-911-19	DIODE 1SS119
D203	8-719-100-65	DIODE RD12E-B2
D204	8-719-911-19	DIODE 1SS119
D205	8-719-911-19	DIODE 1SS119

IC

IC201	8-752-006-10	IC CX20061
IC202	8-759-400-01	IC AN5250

CONNECTOR

CN201	1-536-899-11	TERMINAL BOARD, INPUT/OUTPUT
CN202	1-562-212-00	CONNECTOR, DIN 6P
CN207	1-562-212-00	CONNECTOR, DIN 6P
Q1	*1-564-441-11	PLUG, CONNECTOR (2.5MM) 5P
Q2	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P
Q3	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P
Q4	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P

TRANSISTOR

Q201	8-729-245-83	TRANSISTOR 2SC2458
Q202	8-729-245-83	TRANSISTOR 2SC2458
Q203	8-729-245-83	TRANSISTOR 2SC2458
Q204	8-729-204-83	TRANSISTOR 2SA1048GR
Q205	8-729-204-83	TRANSISTOR 2SA1048GR
Q206	8-729-177-43	TRANSISTOR 2SD774
Q207	8-729-245-83	TRANSISTOR 2SC2458
Q208	8-729-245-83	TRANSISTOR 2SC2458

RESISTOR

R201	1-215-394-00	METAL	75	1%	1/6W
R202	1-247-713-11	CARBON	1K	5%	1/4W

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Ref.No.	Part No.	Description				Remark
R203	1-247-875-00	CARBON	68K	5%	1/6W	
R204	1-247-873-00	CARBON	56K	5%	1/6W	
R205	1-247-831-00	CARBON	1K	5%	1/6W	
R206	1-247-807-00	CARBON	100	5%	1/6W	
R207	1-247-875-00	CARBON	68K	5%	1/6W	
R208	1-215-394-00	METAL	75	1%	1/6W	
R209	1-247-713-11	CARBON	1K	5%	1/4W	
R210	1-247-873-00	CARBON	56K	5%	1/6W	
R211	1-247-807-00	CARBON	100	5%	1/6W	
R212	1-247-831-00	CARBON	1K	5%	1/6W	
R213	1-247-831-00	CARBON	1K	5%	1/6W	
R214	1-247-799-00	CARBON	47	5%	1/6W	
R215	1-247-849-00	CARBON	5.6K	5%	1/6W	
R216	1-247-843-00	CARBON	3.3K	5%	1/6W	
R217	1-249-429-11	CARBON	10K	5%	1/6W	
R218	1-247-893-00	CARBON	390K	5%	1/6W	
R219	1-247-889-00	CARBON	270K	5%	1/6W	
R220	1-247-889-00	CARBON	270K	5%	1/6W	
R221	1-249-429-11	CARBON	10K	5%	1/6W	
R222	1-249-429-11	CARBON	10K	5%	1/6W	
R223	1-247-893-00	CARBON	390K	5%	1/6W	
R224	1-247-889-00	CARBON	270K	5%	1/6W	
R225	1-247-889-00	CARBON	270K	5%	1/6W	
R226	1-247-831-00	CARBON	1K	5%	1/6W	
R227	1-249-421-00	CARBON	2.2K	5%	1/6W	
R228	1-247-841-00	CARBON	2.7K	5%	1/6W	
R229	1-247-803-00	CARBON	68	5%	1/6W	
R230	1-246-981-00	CARBON	4.7	5%	1/8W	F
R232	1-247-823-00	CARBON	470	5%	1/6W	
R233	1-247-823-00	CARBON	470	5%	1/6W	
R234	1-247-863-00	CARBON	22K	5%	1/6W	
R235	1-247-807-00	CARBON	100	5%	1/6W	
R236	1-247-849-00	CARBON	5.6K	5%	1/6W	
R237	1-247-876-00	CARBON	75K	5%	1/6W	
R238	1-247-849-00	CARBON	5.6K	5%	1/6W	
R239	1-247-876-00	CARBON	75K	5%	1/6W	
R240	1-212-851-00	FUSIBLE	5.6	5%	1/4W	F
R242	1-217-477-00	FUSIBLE	4.7	5%	1W	F
		SWITCH				
S201	1-553-725-00	SWITCH, SLIDE				
S202	1-553-725-00	SWITCH, SLIDE				

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*A-1330-584-A C BOARD, COMPLETE
****

1-526-691-00 SOCKET, CRT

CONNECTOR

C1	*1-564-442-11	PLUG, CONNECTOR (2.5MM) 6P
C2	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P
C3	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P
C4	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P

CAPACITOR

C701	1-102-223-00	CERAMIC	0.0047MF	10%	2KV
C703	1-102-050-00	CERAMIC	0.01MF		500V
C704	1-123-933-00	ELECT	10MF	20%	160V

COIL

L701	1-407-704-00	MICRO INDUCTOR 82UH
L702	1-407-709-00	MICRO INDUCTOR 220UH

NEON LAMP

NE702	1-519-013-13	DISCHARGE TUBE
NE703	1-519-013-13	DISCHARGE TUBE
NE704	1-519-013-13	DISCHARGE TUBE
NL701	1-519-108-XX	LAMP, NEON ASSY

TRANSISTOR

Q701	8-729-326-11	TRANSISTOR 2SC2611
Q702	8-729-326-11	TRANSISTOR 2SC2611
Q703	8-729-326-11	TRANSISTOR 2SC2611

RESISTOR

R701	1-202-842-51	SOLID	220K	10%	1/2W	
R702	1-202-719-00	SOLID	1M	10%	1/2W	
R703	1-202-838-00	SOLID	100K	10%	1/2W	
R706	1-213-156-00	METAL OXIDE	12K	5%	1W	F
R707	1-247-815-00	CARBON	220	5%	1/6W	
R709	1-202-822-00	SOLID	2.2K	10%	1/2W	
R710	1-213-156-00	METAL OXIDE	12K	5%	1W	F
R711	1-202-822-00	SOLID	2.2K	10%	1/2W	
R712	1-247-815-00	CARBON	220	5%	1/6W	
R714	1-213-156-00	METAL OXIDE	12K	5%	1W	F
R715	1-202-822-00	SOLID	2.2K	10%	1/2W	
R716	1-247-815-00	CARBON	220	5%	1/6W	

VARIABLE RESISTOR

RV701	1-230-164-21	RES, ADJ, METAL GLAZE 55M

SPARK GAP

SG701	1-519-063-XX	DISCHARGING GAP

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*1-614-502-11 DB BOARD
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CONNECTOR

DB1	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P
DB2	*1-564-445-11	PLUG, CONNECTOR (2.5MM) 9P

DC DD DA

Ref.No.	Part No.	Description			Remark
	*1-614-498-11	DC BOARD			
		********			
		CAPACITOR			
C890	1-123-332-00	ELECT	47MF	20%	16V
C891	1-130-794-00	FILM	0.22MF	10%	250V
C892	1-130-800-00	FILM	2.2MF	10%	250V
		DIODE			
D890	8-719-102-74	DIODE RD6.2E-N2			
D891	8-719-000-28	THYRISTOR CR02AM-8			
D892	8-719-911-55	DIODE U05G			
		CONNECTOR			
DC1	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P			
DC2	*1-560-278-00	PLUG, CONNECTOR 3P			
		TRANSISTOR			
Q890	8-765-620-00	TRANSISTOR 2SD1015			
		RESISTOR			
R895	1-202-846-00	SOLID	470K	1/2W	
R896	1-249-437-11	CARBON	47K 5%	1/6W	
R898	1-247-817-00	CARBON	270 5%	1/6W	
R899	1-247-839-00	CARBON	2.2K 5%	1/8W	F
R900	1-246-517-25	CARBON	68K 5%	1/4W	
**********					
	*1-615-160-11	DD BOARD			
		********			
	*1-564-451-11	PLUG, CONNECTOR (2.5MM) 3P			
		CAPACITOR			
C870	1-161-328-00	CERAMIC	0.0047MF	30%	50V
		IC			
IC805	8-759-170-12	IC UPC78M12H			
**********					
	*A-1345-512-A	DA BOARD, COMPLETE			
		******************			
	3-701-833-01	HEAD, WASHER, TAPPING SCREW			
		CAPACITOR			
C800	1-123-380-00	ELECT	1MF	20%	50V
C801	1-108-599-00	MYLAR	0.068MF	10%	50V
C802	1-108-837-00	MYLAR	0.01MF	10%	50V
C803	1-108-837-00	MYLAR	0.01MF	10%	50V
C804	1-123-369-00	ELECT	4.7MF	20%	25V
C805	1-123-369-00	ELECT	4.7MF	20%	25V

Ref.No.	Part No.	Description			Remark
C806	1-130-868-00	FILM	0.0056MF	5%	50V
C807	1-123-356-00	ELECT	10MF	20%	16V
C808	1-123-382-00	ELECT	3.3MF	20%	50V
C809	1-123-380-00	ELECT	1MF	20%	50V
C810	1-161-059-11	CERAMIC	0.047MF	10%	50V
C811	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C812	1-123-380-00	ELECT	1MF	20%	50V
C813	1-123-356-00	ELECT	10MF	20%	16V
C814	1-124-539-51	ELECT	330MF	20%	35V
C815	⚠1-129-706-51	FILM	0.0022MF	10%	630V
C816	⚠1-130-581-11	FILM	0.033MF	3%	600V
C817	⚠1-129-706-51	FILM	0.0022MF	10%	630V
C820	1-123-335-00	ELECT	330MF	20%	25V
C822	1-102-030-00	CERAMIC	330PF	10%	500V
C823	1-123-347-00	ELECT	330MF	20%	35V
C824	⚠1-102-030-51	CERAMIC	330PF	10%	500V
C825	1-123-933-00	ELECT	10MF	20%	160V
C826	1-123-356-00	ELECT	10MF	20%	25V
C828	1-130-781-00	FILM	0.22MF	10%	100V
C830	1-123-356-00	ELECT	10MF	20%	16V
C831	1-108-591-00	MYLAR	0.033MF	10%	50V
C832	1-108-591-00	MYLAR	0.033MF	10%	50V
C833	1-123-380-00	ELECT	1MF	20%	50V
C834	1-136-173-00	FILM	0.47MF	5%	50V
C835	1-123-322-00	ELECT	330MF	20%	16V
C836	1-124-245-00	ELECT	4.7MF	20%	25V
C837	1-123-379-00	ELECT	0.47MF	20%	50V
C838	1-108-837-00	MYLAR	0.01MF	10%	50V
C839	1-108-845-00	MYLAR	0.047MF	10%	50V
C840	1-102-832-00	CERAMIC	330PF	10%	50V
C841	1-123-360-00	ELECT	100MF	20%	50V
C842	1-123-335-00	ELECT	330MF	20%	25V
C843	1-108-837-00	MYLAR	0.01MF	10%	50V
C844	⚠1-102-030-51	CERAMIC	330PF	10%	500V
C845	1-136-337-11	FILM	3.3MF	10%	100V
C846	1-124-258-00	ELECT	3.3MF	20%	25V
C850	1-123-356-00	ELECT	10MF	20%	25V
C851	1-106-176-00	MYLAR	0.0015MF	5%	50V
C853	1-106-180-00	MYLAR	0.0022MF	5%	50V
C854	1-102-529-00	CERAMIC	100PF	5%	50V
C855	1-123-356-00	ELECT	10MF	20%	16V
C856	1-102-973-00	CERAMIC	100PF	10%	50V
C857	⚠1-102-038-51	CERAMIC	0.001MF		500V
C860	1-123-381-00	ELECT	2.2MF	20%	50V
C862	1-102-074-00	CERAMIC	0.001MF	10%	50V
C863	1-123-380-00	ELECT	1MF	20%	50V
C864	1-124-537-00	ELECT	1200MF	20%	35V
C866	1-102-074-00	CERAMIC	0.001MF	10%	50V
C867	1-101-002-00	CERAMIC	0.0022MF		50V
C868	1-101-003-00	CERAMIC	0.0047MF		50V
		DIODE			
D800	8-719-102-74	DIODE RD6.2E-N2			

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DA

Ref.No.	Part No.	Description	Remark
D801	8-719-911-19	DIODE 1SS119	
D803	8-719-300-76	DIODE RH1A	
D804	8-719-300-76	DIODE RH1A	
D805	⚠8-719-901-95	DIODE V19CSS	
D806	8-719-901-93	DIODE V19E	
D807	8-719-901-93	DIODE V19E	
D808	8-719-901-93	DIODE V19E	
D809	8-719-911-55	DIODE U05G	
D810	8-719-911-19	DIODE 1SS119	
D811	8-719-911-19	DIODE 1SS119	
D812	8-719-911-19	DIODE 1SS119	
D813	8-719-911-19	DIODE 1SS119	
D814	8-719-911-19	DIODE 1SS119	
D815	8-719-911-19	DIODE 1SS119	
D816	8-719-901-83	DIODE 1SS83	
D817	8-719-911-19	DIODE 1SS119	
D818	8-719-911-19	DIODE 1SS119	
D819	8-719-911-19	DIODE 1SS119	
D820	8-719-911-19	DIODE 1SS119	
D821	8-719-102-74	DIODE RD6.2E-N2	
D822	8-719-103-21	DIODE RD20EN2	
D823	8-719-911-19	DIODE 1SS119	
D824	8-719-102-74	DIODE RD6.2E-N2	
D825	8-719-000-28	THYRISTOR CR02AM-8	
D826	8-719-981-00	DIODE ERC81-004	
D827	8-719-981-00	DIODE ERC81-004	
		CONNECTOR	
DA1	*1-564-440-11	PLUG, CONNECTOR (2.5MM) 4P	
DA2	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P	
DA3	*1-564-442-11	PLUG, CONNECTOR (2.5MM) 6P	
DA4	*1-564-353-00	PLUG, CONNECTOR (2.5MM) 2P	
DA5	*1-508-765-00	3P PLUG (M)	
DA6	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P	
DA7	*1-564-445-11	PLUG, CONNECTOR (2.5MM) 9P	
DA8	*1-564-354-00	PLUG, CONNECTOR (2.5MM) 3P	
		IC	
IC800	8-759-100-60	IC UPC1377C	
IC801	8-759-105-82	IC UPC1378H-P	
IC802	8-759-145-58	IC UPC4558C	
IC803	8-759-240-30	IC TC4030BP	
IC804	8-759-345-38	IC HD14538BP	
		COIL	
L800	1-408-242-00	MICRO INDUCTOR 10MMH	
L802	1-408-403-00	MICRO INDUCTOR 3.3UH	
L803	1-459-370-00	COIL, FERRITE (HLC)	
L804	1-459-597-11	COIL, VARIABLE	
L805	1-459-403-00	COIL (WITH CORE)	
L806	1-408-421-00	MICRO INDUCTOR 100UH	
L807	1-459-595-11	COIL, CHOKE	
L810	1-407-365-00	COIL, CHOKE	

Ref.No.	Part No.	Description	Remark
		TRANSISTOR	
Q800	8-729-245-83	TRANSISTOR 2SC2458	
Q801	8-729-201-61	TRANSISTOR 2SC2555-1	
	*4-363-404-00	HOLDER, IC; Q801	
	4-363-414-00	SPACER, MICA; Q801	
Q802	8-729-201-99	TRANSISTOR 2SC3075	
Q803	8-729-245-83	TRANSISTOR 2SC2458	
Q804	8-729-245-83	TRANSISTOR 2SC2458	
Q805	8-729-245-83	TRANSISTOR 2SC2458	
Q806	8-729-245-83	TRANSISTOR 2SC2458	
Q807	8-729-204-83	TRANSISTOR 2SA1048GR	
Q808	8-729-600-27	TRANSISTOR 2SC634-SP	
Q809	8-729-133-43	TRANSISTOR 2SC2334-K	
		RESISTOR	
R800	1-249-429-11	CARBON 10K 5% 1/6W	
R801	1-247-850-00	CARBON 6.2K 5% 1/6W	
R802	1-249-429-11	CARBON 10K 5% 1/6W	
R803	1-247-877-00	CARBON 82K 5% 1/6W	
R804	1-247-857-00	CARBON 12K 5% 1/6W	
R805	1-247-831-00	CARBON 1K 5% 1/6W	
R807	1-247-851-00	CARBON 6.8K 5% 1/6W	
R808	1-247-851-00	CARBON 6.8K 5% 1/6W	
R809	1-247-827-00	CARBON 680 5% 1/6W	
R810	1-247-827-00	CARBON 680 5% 1/6W	
R811	1-247-827-00	CARBON 680 5% 1/6W	
R812	1-206-648-00	METAL OXIDE 220 5% 2W	F
R813	1-212-360-00	METAL OXIDE 1 5% 1W	F
R815	1-247-851-00	CARBON 6.8K 5% 1/6W	
R816	1-249-429-11	CARBON 10K 5% 1/6W	
R818	1-249-429-11	CARBON 10K 5% 1/6W	
R819	1-215-461-00	METAL 47K 1% 1/6W	
R820	1-215-451-00	METAL 18K 1% 1/6W	
R821	1-247-879-00	CARBON 100K 5% 1/6W	
R822	1-213-143-00	METAL OXIDE 1K 5% 1W	F
R824	1-247-023-00	CARBON 2.2 5% 1/8W	F
R825	1-210-859-00	CARBON 1.2 5% 1/8W	F
R826	1-215-445-00	METAL 10K 1% 1/6W	
R827	1-213-149-00	METAL OXIDE 3.3K 5% 1W	F
R828	1-213-149-00	METAL OXIDE 3.3K 5% 1W	F
R829	1-213-149-00	METAL OXIDE 3.3K 5% 1W	F
R830	1-249-429-11	CARBON 10K 5% 1/6W	
R831	1-249-429-11	CARBON 10K 5% 1/6W	
R832	1-247-851-00	CARBON 6.8K 5% 1/6W	
R833	1-247-863-00	CARBON 22K 5% 1/6W	
R834	1-247-859-00	CARBON 15K 5% 1/6W	
R835	1-249-429-11	CARBON 10K 5% 1/6W	
R836	1-247-869-00	CARBON 39K 5% 1/6W	
R837	1-247-831-00	CARBON 1K 5% 1/6W	
R838	1-247-824-00	CARBON 510 5% 1/6W	
R839	1-247-852-00	CARBON 7.5K 5% 1/6W	
R840	1-247-863-00	CARBON 22K 5% 1/6W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref.No.	Part No.	Description				Remark
R842	1-249-429-11	CARBON	10K	5%	1/6W	
R843	1-249-434-11	CARBON	27K	5%	1/6W	
R844	1-247-817-00	CARBON	270	5%	1/6W	
R845	1-212-368-00	METAL OXIDE	4.7	5%	1W	F
R846	1-213-138-00	METAL OXIDE	390	5%	1W	F
R847	1-213-138-00	METAL OXIDE	390	5%	1W	F
R848	1-213-139-00	METAL OXIDE	470	5%	1W	F
R849	1-247-848-00	CARBON	5.1K	5%	1/6W	
R850	1-249-429-11	CARBON	10K	5%	1/6W	
R851	1-249-429-11	CARBON	10K	5%	1/6W	
R852	1-249-411-11	CARBON	330	5%	1/8W	F
R853	1-247-831-00	CARBON	1K	5%	1/6W	
R855	1-215-434-00	METAL	3.6K	1%	1/6W	
⊠R856 ⚠		METAL			1/6W	
⊠R859 ⚠		METAL			1/6W	
R860	1-247-847-00	CARBON	4.7K	5%	1/6W	
R861	1-247-847-00	CARBON	4.7K	5%	1/6W	
R862	1-247-867-00	CARBON	33K	5%	1/6W	
R863	1-247-831-00	CARBON	1K	5%	1/6W	
R864	1-247-879-00	CARBON	100K	5%	1/6W	
R866	1-249-429-11	CARBON	10K	5%	1/6W	
R867	1-215-433-00	METAL	3.3K	1%	1/6W	
R868	1-249-437-11	CARBON	47K	5%	1/6W	
R869	1-249-437-11	CARBON	47K	5%	1/6W	
R870	1-215-469-00	METAL	100K	1%	1/6W	
R871	1-247-895-00	CARBON	470K	5%	1/6W	
R872	1-247-889-00	CARBON	270K	5%	1/6W	
R873	1-247-831-00	CARBON	1K	5%	1/6W	
R874	1-247-847-00	CARBON	4.7K	5%	1/6W	
R876	1-215-427-00	METAL	1.8K	1%	1/6W	
R880	1-215-452-00	METAL	20K	1%	1/6W	
⊠R881 ⚠		METAL			1/6W	
R882	1-215-441-00	METAL	6.8K	1%	1/6W	
R883	1-247-863-00	CARBON	22K	5%	1/6W	
R884	1-247-860-00	CARBON	16K	5%	1/6W	
R885	1-247-852-00	CARBON	7.5K	5%	1/6W	
R886	1-247-852-00	CARBON	7.5K	5%	1/6W	
R888	1-247-847-00	CARBON	4.7K	5%	1/6W	
R890	1-247-831-00	CARBON	1K	5%	1/6W	
R891	1-247-851-00	CARBON	6.8K	5%	1/6W	
R892	1-249-421-11	CARBON	2.2K	5%	1/6W	
R893	1-247-837-00	CARBON	1.8K	5%	1/8W	F
R894	1-247-807-00	CARBON	100	5%	1/6W	

VARIABLE RESISTOR

RV800	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K
RV801	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K
RV802	1-228-720-00	RES, ADJ, CERAMIC CARBON 1K
RV803	1-228-717-00	RES, ADJ, CERAMIC CARBON 220
RV804	1-224-249-XX	RES, ADJ, METAL GLAZE 1K
RV805	1-223-102-00	RES, ADJ, WIREWOUND 120
RV806	1-228-727-00	RES, ADJ, CERAMIC CARBON 47K
RV807	1-230-521-11	RES, ADJ, METAL GLAZE 2.2K
RV808	1-226-703-00	RES, ADJ, METAL GLAZE 10K

RELAY

RY800	1-515-380-00	RELAY

TRANSFORMER

T800	1-437-082-00	HDT
T802	1-437-081-00	TRANSFORMER, CDT

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	*1-614-494-11	HA BOARD
		********

CAPACITOR

C501	1-123-332-00	ELECT	47MF	20%	25V
C502	1-101-004-00	CERAMIC	0.01MF		50V

DIODE

D501	8-719-911-19	DIODE 1SS119

CONNECTOR

HA1	*1-564-451-11	PLUG, CONNECTOR (2.5MM) 3P
HA2	*1-564-452-11	PLUG, CONNECTOR (2.5MM) 4P
HA3	*1-564-450-11	PLUG, CONNECTOR (2.5MM) 2P
HA4	*1-564-452-41	PLUG, CONNECTOR (2.5MM) 4P
HA5	*1-564-452-41	PLUG, CONNECTOR (2.5MM) 4P
HA6	*1-564-453-11	PLUG, CONNECTOR (2.5MM) 5P
HA7	*1-564-453-11	PLUG, CONNECTOR (2.5MM) 5P

TRANSISTOR

Q501	8-729-245-83	TRANSISTOR 2SC2458

RESISTOR

R501	1-247-819-00	CARBON	330	5%	1/6W
R502	1-249-434-11	CARBON	27K	5%	1/6W
R503	1-247-883-00	CARBON	150K	5%	1/6W
R504	1-247-867-00	CARBON	33K	5%	1/6W
R505	1-247-887-00	CARBON	220K	5%	1/6W
R506	1-247-867-00	CARBON	33K	5%	1/6W
R507	1-247-873-00	CARBON	56K	5%	1/6W
R508	1-247-854-00	CARBON	9.1K	5%	1/6W
R509	1-246-533-00	CARBON	330K	5%	1/4W
R510	1-247-829-00	CARBON	820	5%	1/6W
R511	1-247-831-00	CARBON	1K	5%	1/6W
R512	1-247-163-00	CARBON	22K	5%	1/4W
R513	1-247-851-00	CARBON	6.8K	5%	1/6W

VARIABLE RESISTOR

RV501	1-230-760-11	RES, VAR, CARBON 1K
RV502	1-230-761-11	RES, VAR, CARBON 20K/1K
RV503	1-230-711-11	RES, VAR, CARBON 20K

- The components identified by ⊠ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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Ref.No.	Part No.	Description	Remark
RV504	1-230-760-11	RES, VAR, CARBON 1K	
RV505	1-230-762-11	RES, VAR, CARBON 20K	
RV506	1-230-710-11	RES, VAR, CARBON 10K	
RV507	1-230-710-11	RES, VAR, CARBON 10K	
RV508	1-226-703-00	RES, ADJ, METAL GLAZE 10K	
RV509	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K	
		THERMISTOR	
TH501	1-800-944-00	THERMISTOR TH-4700	
**********			
	*1-614-495-11	HB BOARD ********	
	*4-374-809-01	HOLDER (3 GANG), LED	
		DIODE	
D502	8-719-812-32	DIODE TLY123	
D503	8-719-812-32	DIODE TLY123	
D504	8-719-812-32	DIODE TLY123	
		CONNECTOR	
HB2	*1-564-450-11	PLUG, CONNECTOR (2.5MM) 2P	
		SWITCH	
S501	1-554-118-00	SWITCH, PUSH (1 KEY)	
S502	1-554-118-00	SWITCH, PUSH (1 KEY)	
S503	1-554-118-00	SWITCH, PUSH (1 KEY)	
S504	1-554-118-00	SWITCH, PUSH (1 KEY)	
**********			
	*1-614-496-11	X BOARD *******	
	*4-337-424-00	HOLDER (L), LED	
		DIODE	
D680	8-719-812-33	DIODE TLG123A	
**********			
		MISCELLANEOUS **********	
	⚠1-451-265-11	DEFLECTION YOKE (SY-167)	
	1-452-032-00	MAGNET, DISK; 10MM ø	
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ø	
	1-452-126-11	MAGNET	
	1-507-465-00	JACK, POWER OUTSIDE	
	⚠1-509-547-11	3P INLET	
L901	⚠1-426-043-12	COIL, DEGAUSSING	
S901	⚠1-570-200-11	SWITCH, PUSH (AC POWER)(1 KEY)	
S902	⚠1-516-046-11	SWITCH, SLIDE	
SP901	1-502-509-00	SPEAKER	
T801	⚠1-439-358-11	TRANSFORMER ASSY, FLYBACK	
V901	⚠8-737-651-05	CRT (M20JMP10X)	

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ACCESSORIES AND PACKING MATERIALS
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Part No.	Description	Remark
⚠1-551-812-11	CORD, POWER	
3-548-372-00	BAG, POLYETHYLENE	
4-374-831-01	HOOD	
4-374-840-01	INDIVIDUAL CARTON	
4-374-848-01	CUSHION (UPPER) (ASSY)	
4-374-849-01	CUSHION (LOWER) (ASSY)	
4-482-062-21	MANUAL, INSTRUCTION	
4-491-213-22	INSTRUCTION	

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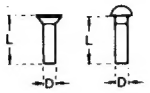
HARDWARE NOMENCLATURE

Screw: P 3 x 10

- *L: Length in mm*
- *D: Diameter in mm*
- *Type of head*
- *Indicated slotted-head only. Unless otherwise indicated, it means cross-recessed head (Phillips type).*



Nut, Washer, Retaining ring: N 3

- *Diameter of usable screw or shaft*
- *Reference designation*

Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	